

Between Ideals and Realities: Challenges in Creating Societal Impact Metrics

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Concerns about the societal impact of research date back to the early 20th century. Vannevar Bush's 1945 report, "Science. The Endless Frontier," posited that investment in science inherently benefits society. However, earlier efforts, such as the Rockefeller Foundation's "Social Impact" program in the 1920s-1930s, aimed to leverage scientific knowledge to tackle social issues like poverty, education, and healthcare. Historically, it was assumed that excellent research would automatically benefit society.

Since the 1980s, this assumption has been challenged, with increasing demands for evidence demonstrating the societal value of science. Given that public resources fund research, there is an expectation of a demonstrable return on this investment. This shift has led to the development of various quantitative and qualitative assessment methods and financing models, a more instrumental approach to research and innovation, a normative perspective on scientists' engagement with societal issues, and the introduction of terms and concepts that highlight the social impact of research. These concepts emphasize analyzing and assessing the outputs and societal effects of research, which extend beyond academia to include social, cultural, political, economic, and environmental benefits.

To analyze and stimulate these benefits, diverse models and metrics have been created and are used both before and after research activities. While output indicators such as bibliometric and econometric measures are well-established, measuring societal impact remains complex. Challenges include attributing outcomes to specific research, establishing causality, the long timescales required for evaluation, disciplinary diversity, institutional contexts, and the latency and unpredictability of research impacts.

Despite these complexities, numerous models now exist to encourage and evaluate societal impact at regional and European levels. There is a growing body of literature on impact evaluation, with a focus on case studies and determinants of impact within the research process, such as collaboration and interdisciplinarity.

However, despite increasing academic and policy interest, coherent models for measuring societal impact, especially in social, cultural, or political domains, remain elusive. Most existing models focus on economic or commercial impacts, leaving a significant gap in comprehensively assessing the broader societal contributions of research.

Recent efforts to investigate the impact of research have included the analysis and application of altmetrics, which pertain to the dissemination of knowledge among non-academic stakeholders. Additionally, models such as SIAMPI, productive interactions, the credibility cycle framework, and connections with Actor-Network Theory (ANT) have been developed. There is a general consensus that the dissemination of knowledge to non-academic partners can serve as a proxy for impact. Although numerous financing and evaluation instruments already reference knowledge dissemination or science communication, a robust and valid indicator for objective measurement is currently lacking.

In the context of ongoing research at the Centre for Research & Development Monitoring (ECOOM) at the Vrije Universiteit Brussel (VUB), we are investigating the feasibility of developing such an indicator. Specifically, we are examining how the coverage of research and researchers in traditional media might contribute to the formation of a valid and reliable indicator of research impact.

This research is divided into several case studies, employing various methodological approaches, including lexicon-based methods, the development of a classifier, topic labeling assignment, and topic proximity analysis. In other words, new computational techniques were utilized to combine data from different databases, namely FRIS, BelgaPress, and OpenAlex. The case studies reveal, among other findings, that only a limited number of Flemish researchers are mentioned in the Flemish print media, there is an over-representation of male researchers and those from the Social Sciences and Humanities, and a small number of 'public intellectuals' or 'celebrities' dominate media presence. Furthermore, the data analysis indicates the need for contextualization, as the results are not readily suitable for developing an indicator. However, we successfully employed new techniques to extract research and researchers from print media data and link them to research topics.

In conclusion, it can be said that our research represents a preliminary step towards discussing the societal impact of research in an objective and transparent manner. We believe that, in the future, much more will be possible with various types of datasets. However, the application of such qualitative text analysis methods requires the availability of sufficient data. Thus, open science and open sources are essential. Only with ample qualitative and quantitative texts available publicly can we conduct complex analyses aimed at better understanding various forms of knowledge transfer and use, and developing evaluation and incentive instruments.

Furthermore, more studies and analyses are necessary before implementing indicators and models. It is vital not only to develop methods, indicators, or assessment models but also to understand the contextual mechanisms that influence performance. A blind media indicator, for instance, could lead to undesirable effects if we lack insight into contextual processes like media presence. Therefore, we must avoid past mistakes by ensuring we fully comprehend the contextual factors before adopting any indicators.

Finally, it is crucial not to place all research within the framework of societal impact assessment. Many criticisms regarding the challenges of measuring impact are justified. We must avoid repeating past mistakes associated with other implemented indicators. Not all research should be instrumentalized within the 'social impact' paradigm. Instead, there may be merit in focusing less on impact and more on the processes of knowledge dissemination and use.