국가연구개발사업 평가에서 사회연결망 분석 활용 방안

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논문 요약

In planning and evaluating government R&D programs, one of the first steps is to understand the government's current R&D investment portfolio - which fields or topics the government is now investing in in R&D. Analysis methods of an investment portfolio of government R&D tend traditionally to rely on keyword searches or ad-hoc two-dimensional classifications. The main drawback of these approaches is their limited ability to account for the characteristics of the whole government investment in R&D and the role of individual R&D program in it, which tends to depend on the relationship with other programs. This paper suggests a new method for mapping and analyzing government investment in R&D using a combination of methods from natural language processing (NLP) and network analysis. The NLP enables us to build a network of government R&D programs whose links are defined as similarity in R&D topics. Then methods from network analysis show the characteristics of government investment in R&D, including major investment fields, unexplored topics, and key R&D programs which play a role like a hub or a bridge in the network of R&D programs, which are difficult to be identified by conventional methods. These insights can be utilized in planning a new R&D program, in reviewing its proposal, or in evaluating the performance of R&D programs. The utilized (filtered) Korean text corpus consists of hundreds of R&D program descriptions in the budget requests for fiscal year 2017 submitted by government departments to the Korean Ministry of Strategy and Finance.

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