

Government Research Bulletin (GRB) (www.grb.gov.tw) is the official platform to provide up-to-date information regarding the government funded research projects in Taiwan. Since GRB launched in 1997, it has been operated as a data warehouse to collect and store research information from research institutes. With the trend of open data, we are trying to turn our warehouse into a transparent showcase. To increase the discoverability, accessibility, interoperability, and reusability of the research information in GRB, the website services of GRB have been improved recently by applying visualization tools and text-mining tools. The new GRB provides multi-dimensional search engine for users to search for research projects, researchers and institutes. Users can easily key in some keywords with Boolean operators and set up the filters to access the research information they are interested in. After keying in a keyword in the search engine of projects, users can explore the search results through not only the project list related to that keyword, but also the word cloud graphs derived from text-mining results of those related project contents. Word cloud graphs can help users forming concepts in mind about what researches have been done recently. The new GRB also applies an API provided by Lucene to calculate the similarity between every two projects, and to provide the list of projects according to priority ranking by their similarity to the main project interested by users. Users can also easily find a group of researchers working on similar topics and their cooperation network graphs by keying in a researcher's name or just a keyword in the researcher search engine. Furthermore, to help users searching for institutes working to a specific topic, geographic visualization tool is applied to display the location of those institutions which conducts projects related to a keyword input by users. Besides the improvement of search engine, a data visualization tool called Highcharts is also applied to display the real-time calculated results of the data collected by GRB. Users can interact with the charts online to explore the number of projects and the amount of research budgets every year since 1993. To further serve users interested some specific hot topics (such as biotech medicine, green energy, and artificial intelligent), the new GRB also provides analysis reports using GRB data to reveal the research trends about those hot

topics. Users can download them for free. Now GRB are still evolving for providing better research information services.