

# A Study on Support of Project Planning Competency for Small & Mid-sized Enterprises Using National Science & Technology Data

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**Abstract**— There have been a lot of policies to support small and mid-sized enterprises (SMSEs), which have recently emerged as leading figures in technology innovation. The National Science and Technology Information Service (NTIS), which has provided national R&D data also launched a business support service in late 2015 and has helped the SMSEs build project planning capability since then. This study attempted to review the NTIS’ business support service system and examine its improvement and development plan.

**Keywords**- National R&D; R&D information; SMSEs; small and mid-sized enterprises; business support service; NTIS.

## I. INTRODUCTION

Among the profit-making businesses in the Republic of Korea, the percentage of small and mid-sized enterprises (SMSEs) is as large as 99.9%, having a considerable effect on national economy [1]. Even though they have emerged as key players for technology innovation, they are still short of funds, technology, knowledge and manpower, compared to big businesses [2][3]. In particular, approximately 70% of them are incapable of implementing R&Ds due to difficulty in securing R&D staff and turnover of current R&D personnel [4]. Considering these obstacles, the National Science & Technology Information Service (NTIS) has provided special services for the SMSEs to help them build project planning capability, which is needed to create new programs.

The NTIS is a national R&D data knowledge portal which provides information on government-funded R&D programs, such as national R&D programs and projects, personnel, research outcome and R&D equipment and facilities [5]. In connection with 17 government offices and bureaus, it collects standard national R&D data under 422 different categories and has opened 295 items to the public through the related services such as integrated search. The government-led portal has nearly 150,000 members. Among them, government bureaus and project management institutes account for 6% while businesses and colleges & government-funded research institutes are 34% and 44.6% respectively. In average, it records 2.11 million page views per month.

The NTIS developed a dedicated webpage for business users in late 2015 and has provided support since then to encourage them to actively use national R&D data for diverse purposes such as project proposal and data analysis.

This study investigates the NTIS’ business support service in Section II and proposes a development and

improvement direction to support SMSEs’ R&D activities in Section III.

## II. CURRENT SERVICES

In terms of SMSEs’ needs derived through a demand survey, the followings were found: research trend and technical trend data on key technology, experts for collaboration and new national R&D projects. In addition, there was a necessity for linkage with experts who can back up analytical ability. Therefore, NTIS’s business support service consists of two parts: providing customized information and supporting expert analysis based on users’ demand.

### A. Customized Information service

SMSEs are in high demand for research trends, collaboration partner and national R&D project information to apply for government R&D funds. For this need, NTIS provides such information through customized information service. As shown in Figure 1, a business user enters keywords and requirements of interest, and the NTIS manager extracts the projects in which the user-entered keywords are matched with the keywords on the national R&D program and project database. Then, they are provided with linkage information to allow users to check the projects in detail. In addition, the system supports the search of expert information which requires collaboration by providing major research outcome along with the information of chief researchers who implemented the projects (e.g., name, institute name, number of the related projects implemented, total project budget).

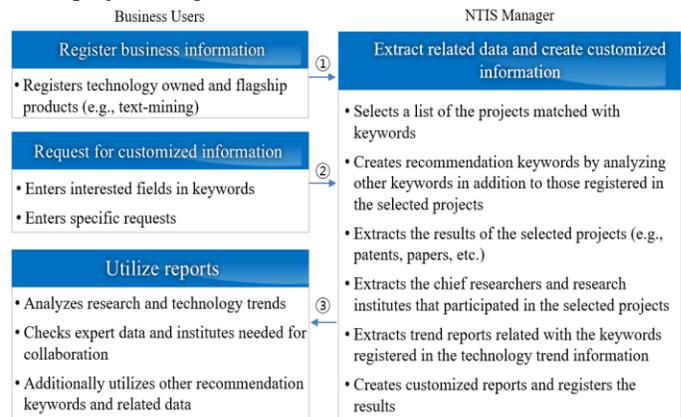


Figure 1. Customized Information Service

B. Expert Analysis service

If SMSEs need analysis information and experts' opinions on the interested fields, NTIS provides such information through expert analysis service. As shown in Figure 2, SMSEs enter keywords and requests and ask for expert analysis. In connection with experts on the Global Network of Korean Scientists and Engineers (KOSEN), the NTIS provides text summary and expert opinions to the users who want text analysis and related data and experts' opinions to those who need national R&D results. The NTIS pays all the costs needed for the expert support service so that businesses are able to use it free of charge.

The business support service may be of some help to SMSEs which have found it hard to invest their manpower and time in data acquisition and analysis. In particular, data search time was significantly reduced, allowing users to find the information they want in a quick and easy fashion.

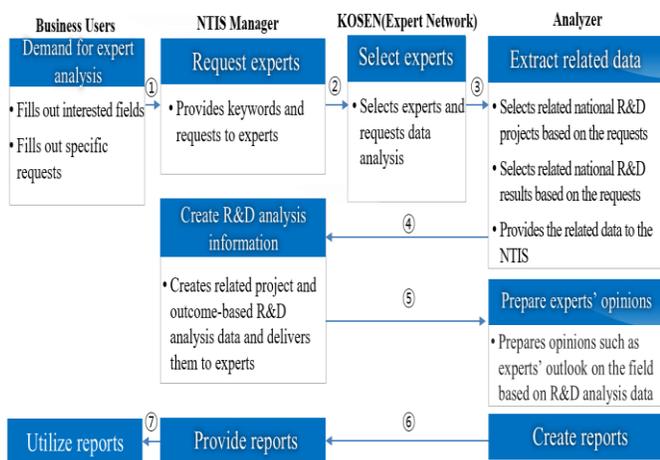


Figure 2. Expert Analysis Service

C. Service Status

Business support has been in service since Dec. 2015, and Figure 3 shows the business support service page currently being offered. 162 cases of customized information and 18 cases of expert analysis information are provided.



Figure 3. Business Support Service Web Page in NTIS

III. IMPROVEMENT AND DEVELOPMENT DIRECTION

The customized information service which is currently available is a one-time service, which provides analysis results to business users. Under this service, a report file is provided within three days from the date of request. For active business support, a smart push service which creates customized information regularly based on profile data and makes it available readily is needed. For this, there should be a system which can register profile information needed for analyzing data, such as keywords and interested products, and automatically extract and analyze related information.

With rapid technology development, R&D cooperation has become more important. Under these circumstances, it is required to establish a core competency-based collaboration system to implement national R&D programs. Even if SMSEs need to know who has the knowledge they want ('know-who') and where it is ('know-where'), they have found it hard to approach 'know-who' and 'know-where' with a poor personnel network [6]. In Europe, collaboration partner services are provided via CORDIS. It supports an expert-centric collaboration system by connecting projects with institutes and/or businesses.

The NTIS which provides national R&D data in an integrated manner can also offer SMSEs that are competent in academia-industry-research collaboration-based R&D projects an opportunity to participate by providing a collaboration partner service for the purpose of establishing a transparent and effective collaboration system.

IV. CONCLUSION

This study investigated the NTIS' business support service which helps the SMSEs that have no room for spending time and manpower in data acquisition and analysis build project planning capability. To upgrade the current business support service to an active and effective one, i) business profile information-based smart push service and ii) academia-industry-research collaboration-based R&D collaboration system support service are needed. The NTIS plans to keep moving forward to eliminate the obstacles of the SMSEs by analyzing their needs.

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REFERENCES

- [1] 2014 SMSE's Status Indicators, Small Medium Business Administration (SMBA).
- [2] D. Ahn, "Some Theses for the Promotion of Technological Innovation of Small and Medium Firms-based on the survey materials about the innovation hindrances", Koreanstudies Information Service System, Vol.22, pp.25-50, 2004.

- [3] Y. Lee, J. Shin, J. Shin and J. Yoo, "A Study on Direction of Support on Domestic Small & Mid-sized Enterprises under Open Innovation Environment" , Korean Institute of Industrial Engineers, pp.46-50, 2010
- [4] C. Lee, M. Park, P. Kim and H. Shim, "A Study of the Improvement of Partner System Efficiency to Strengthen Government-funded Research Institutes' Support on Small and Mid-sized Enterprises", Korea Technology Innovation Society, pp.47-58, 2014
- [5] <http://www.ntis.go.kr>[retrieved: 5, 2017]
- [6] Y. Lee, "The Open Innovation Value and Policy Implications of Small and Mid-sized Enterprises' ICT R&D", Information & Communications Policy, Vol.25, No.22, pp.22~46, 2013