

Effect of Open API, NDSL Open Service (NOS) on Sharing Technical Reports in Korea

Dec. 2, 2013

Seon-Hee Lee, Mi Hwan Hyun

Korea Institute of Science and Technology
Information (KISTI)

Contents

- Introduction
- Goal
- Method/Process
- Results
- Conclusion



The screenshot displays the NOS website interface. At the top, there's a header with the NDSL logo and '오픈서비스' (Open Service) text. Navigation links include 'HOME', 'NOS란?' (What is NOS?), '오픈 API', 'stOAI', and 'NDSL 검색창 달기' (Add NDSL search bar). A main banner features the slogan '개방과 공유로 만들어 가는 과학기술 지식생태계' (Creating a science and technology knowledge ecosystem through openness and sharing) with an illustration of people and a computer. Below the banner, there are three promotional boxes for NDSL OPEN API, Open API, and Open API examples. The '주요 활용기관' (Main Usage Institutions) section includes a bar chart showing the number of institutions by type (University: 24, Research Institute: 26, Private Company: 21, Public Agency: 18) as of August 2013, and a table listing various institutions. The 'NOS 자료실' (NOS Resource Room) section shows three book covers: 'NOS Open API 활용' (Using NOS Open API), 'NOS 소개' (Introduction to NOS), and 'NOS Open Service 활용사례' (Cases of NOS Open Service). The footer contains contact information for KISTI, including address, phone numbers, email, and copyright notice, along with various certification logos like ISO 10002, KITA, and W3C.

기관유형	주요기관
대학교	서울대, 중앙대, 경북대, 고려대, 대구한일대, 건국대, 서울시립대, 아주대, 중남대, 서울과학대 등
연구소	한국과학기술연구원, 한국과학기술원, 한국과학기술기획평가원, 한국과학기술정보연구원, 한국과학기술정책연구원, 한국과학기술정책연구원, 한국과학기술정책연구원 등
민간기업	누리미디어, EBSCO, 한국학술정보, 네이버, 다음, 삼성전자, 엔이닉스반도체, 현대자동차, Exlibris, LG상업도서관 등
공공기관	국립중앙도서관, 한국연구재단, 한국특허정보원, JST, 국가과학기술진흥재단, 디지털도서관, 산학협력단, 과학기술정보통신부, 한국수자원공사 등

NOS website (<http://nos.ndsl.kr>)

Introduction

- KISTI has been collecting technical reports from national research and development projects through National Science & Technology Information System (NTIS) and servicing them through a portal system called the National Discovery for Science Leaders (NDSL).
- NDSL contains about 170,000 titles of national R&D technical reports as of March 2013.
- In 2009, KISTI implemented an OpenAPI called NDSL Open Service (NOS) to increase sharing of the national R&D research results among users in major portals, institutes, and universities in Korea.
- NOS is an open platform. NOS participants can access, connect, and use the technical reports from their website directly using OpenAPI instead of having to use the NDSL platform. Usage of technical reports has increased dramatically since the implementation of NOS.

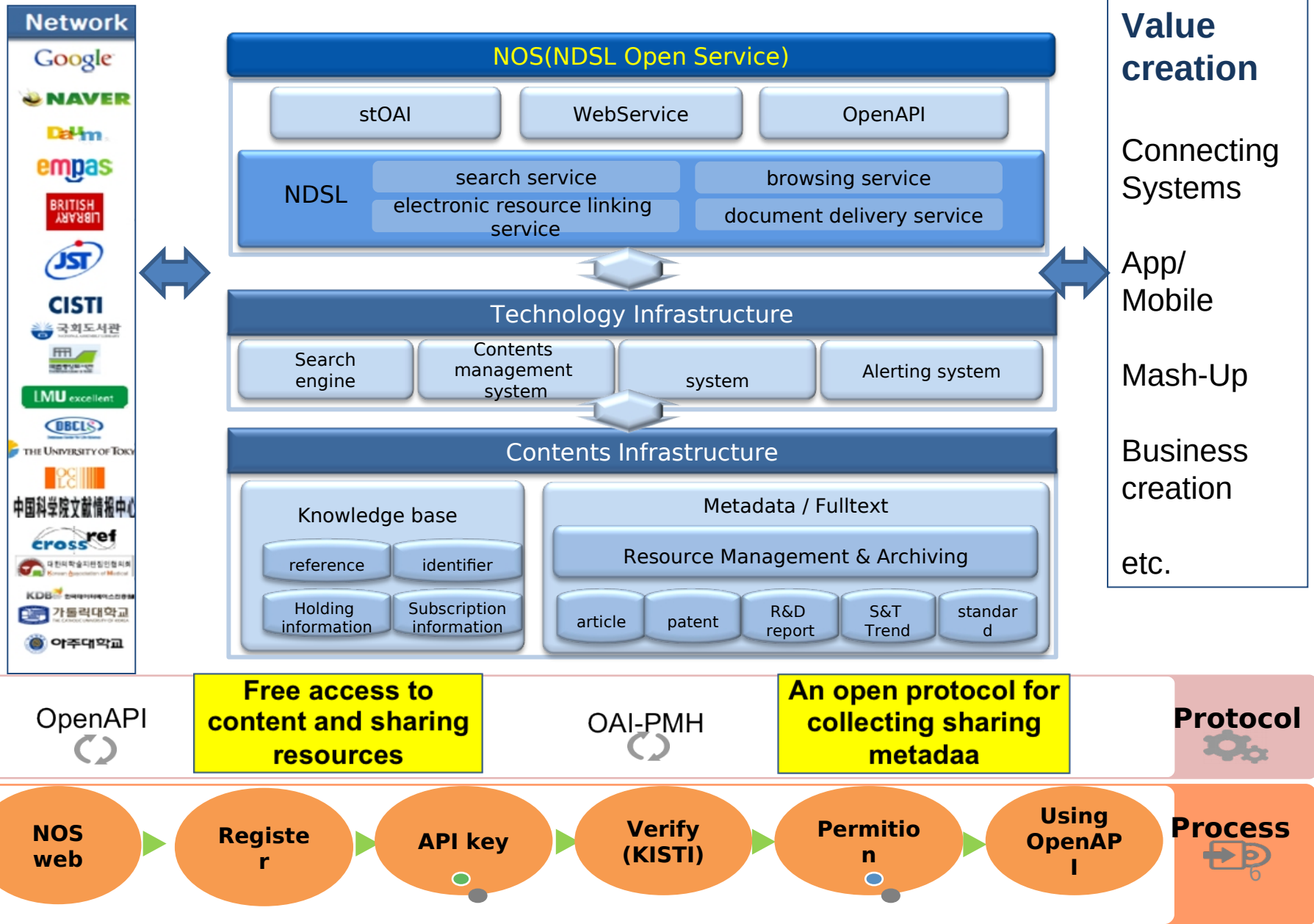
Goal

- This study analyzes the effect of NOS on the usage of national R&D technical reports by examining the changes in the amount of usage and the number of participating organizations in NOS.

Method/Process

- Configuration of NOS was introduced for its design and system.
- Data exchange protocols among types of resources and their NOS usage were compared.
- The numbers of universities, institutes, and portals participating in NOS and the technical report usage through NOS was examined from 2009 to 2012.
- The usage statistics were obtained from the NOS usage monitoring system.
- The amount of usage between NDSL and NOS for technical report was compared.

NOS Configuration

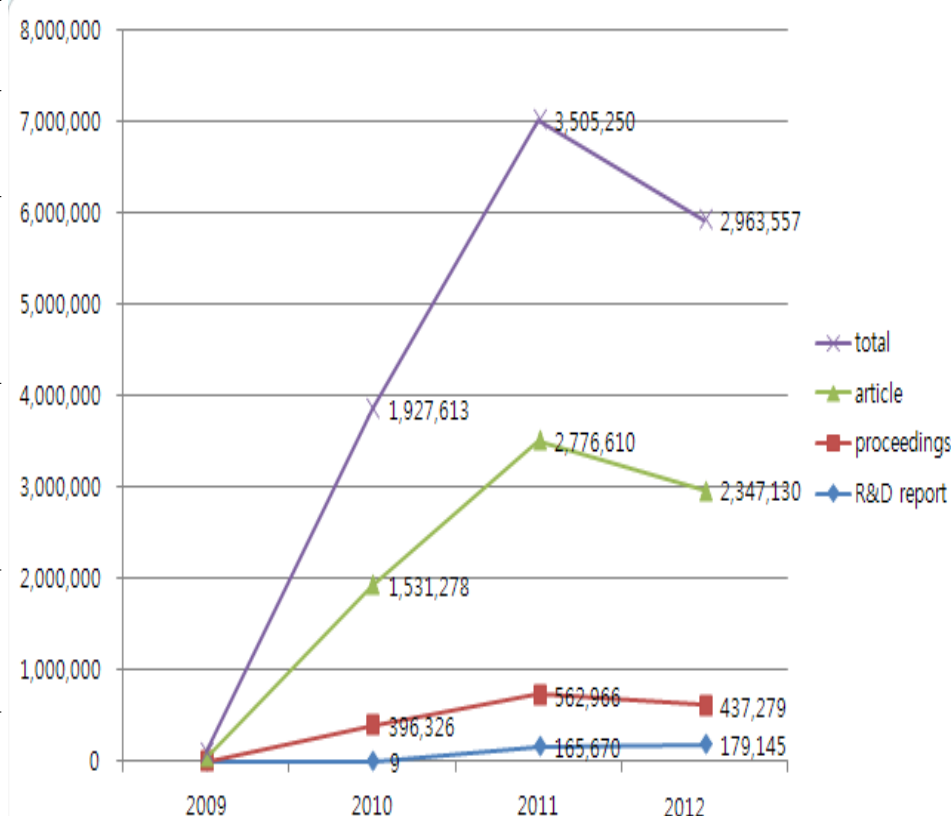


NOS Protocols & Usages

Comparison between stOAI and OpenAPI

Type	stOAI	OpenAPI
Protocol	OAI-PMH	REST
Contents	domestic articles, R&D reports, S&T trends	articles, patents, R&D reports, S&T trends, standards
Services	metadata, full-text link	search, browse, DDS(Document Delivery Service), link resolver
Data transmitting method	XML	RSS XML JSON
Authentication method	IP authentication	API Key authentication

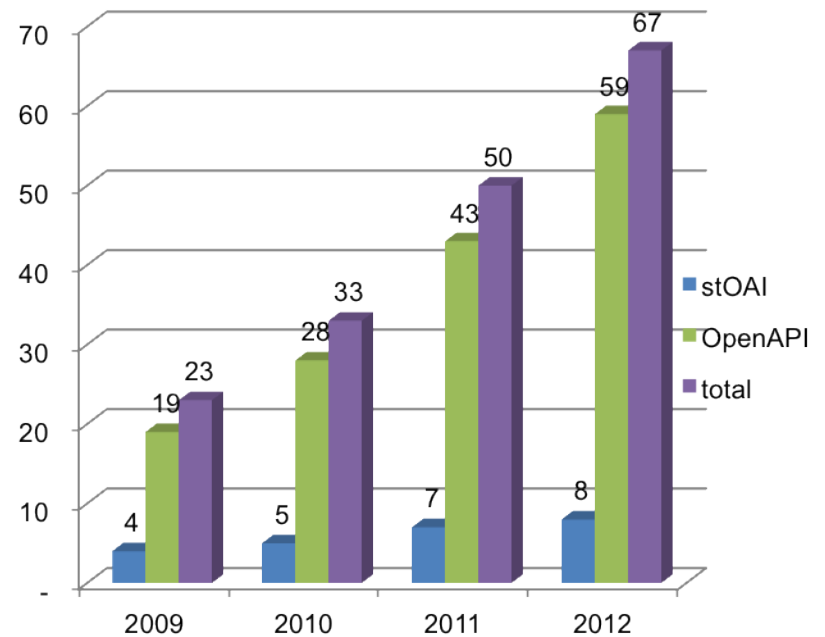
Downloads by types of resources
through NOS



Results

Participating institutes

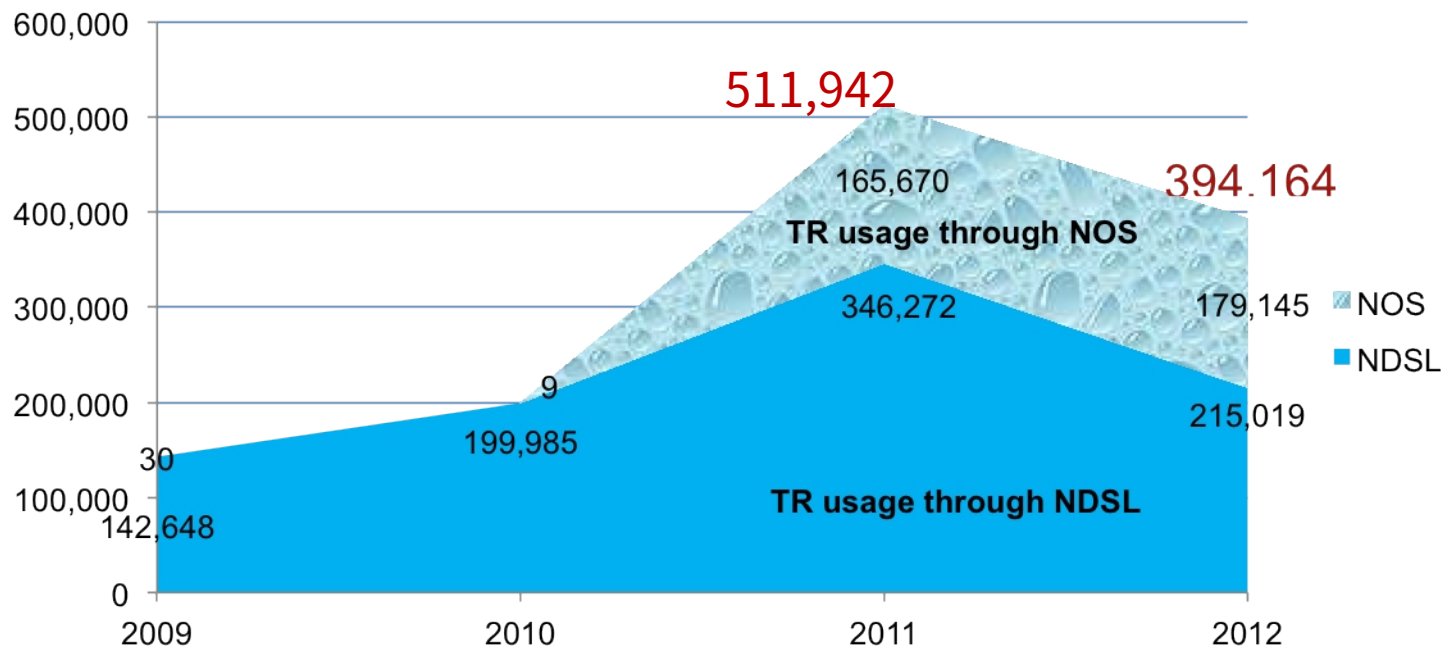
- The numbers of participating organizations in NOS increased 191% from 23 in 2009 to 67 in 2012.
- The participants include universities, research institutes, and major portals such as Seoul National University, Korea Advanced Institute of Science and Technology, NAVER, Samsung Electronics, etc.



NOS organizations (2009-2012)

Amount of Usage for TR: NOS & NDSL

- The technical report (TR) usage through NOS in terms of full-text download has increased.
- The full-text download through NOS has increased by 83.3% since its implementation compared to the previous usage by NDSL portal alone.

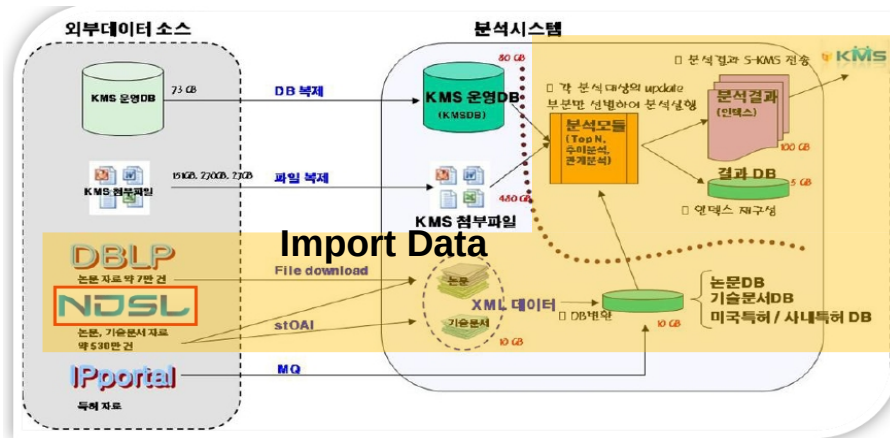


TR full-text downloads (2009-2012)

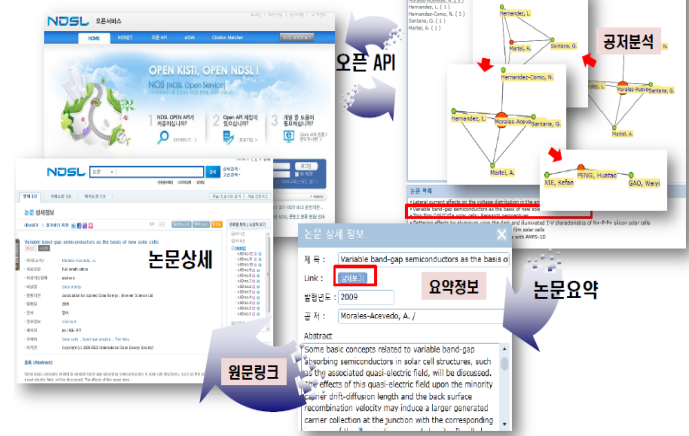
Utilizations by Organizations

Secondary data processing
(keyword extraction)

Samsung Electronics



논문공저 분석 서비스 및 원문링크



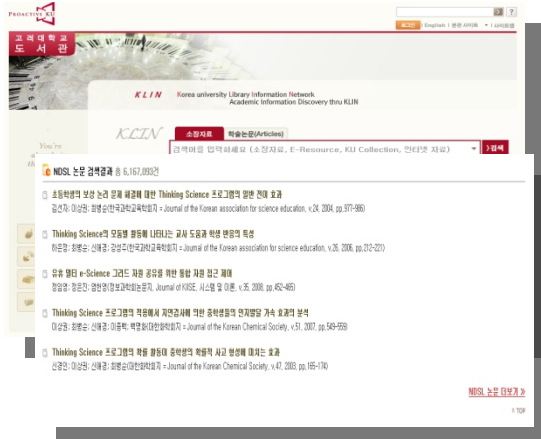
stOAI

NAVER stOAI



Korea University

Integrated Search => OpenAPI



Korea Institute of Machinery & Materials

Document Delivery => OpenAPI



Conclusion

- National R&D technical reports produced by Korean Government funds are being shared among users through various portals, universities, research institutes, and companies through NOS.
- The usage of technical reports has increased dramatically since NOS implementation in 2009 and more than 45% of the total TR usages were made through NOS in 2012.
- As an open platform, NOS has contributed to distributing grey literature and populating repositories in Korea.
- Through NOS, the Korean R&D research results as national knowledge asset can be utilized by a vast number of users for creating new studies and avoiding duplication of research.

Effects of NOS are

- improving R&D capabilities by provision of the latest, qualified STI and value-added services
- promoting distribution of R&D results among organizations such as academia, research institutions, etc.
- budget savings for DB construction and system development, and their management for participating organizations
- providing new mash-up services that are needed for users
- commercialization by participating organizations
- building an ST knowledge ecosystem through creative ideas

Thank you