CSTIS, Policy Making Body for National Research Information System in IRAN

P. Mehrtash[a], O. Fatemi[b a]
[a] Iranian Research Institute for Information Science and Technology
[b] University of Tehran

Summary

Currently, the main asset for every country is the produced and acquired science and technology in the country. [Alidousti, 1996]. In Islamic Republic of Iran, as Iran 1404, the Vision Document or 20-Year Document dictates the country will be the first in the region. [Iranian 1404 Perspective Document, 2006]

This has resulted in a national research movement and hence, the number of scientific documents has been extremely rising in the recent years. One of the main requirements and infrastructures for this research movement is to have well established policies and guidelines for national research information system. [Horri, 2006], [Zandian,2008]

The "Commission of Science and Technology Information System" – CSTIS under the authority of Ministry of Science, Research and Technology has been established to provide policies in registration, collection, organization, dissemination and publication of scientific information. CSTIS also is designed to enforce consistency among its subordinate libraries and scientific information centers. [Horri, 2006]

In this paper, the architecture of the commission and its outcomes and achievements during last six years are presented.

1 Introduction

Knowledge growth has been in exponential form in the last decade. Therefore, the need for an organized information system should be answered carefully.

On the other hand, today the main asset for every country is the acquired science and technology in the country. [Kurshid,1982] And the need for this information dictates the necessity of research information systems. [NSTMIS]

In Islamic Republic of Iran, as Iran 1404, the Vision Document or 20-Year Document dictates the country will be the first in the region. [Iranian 1404 Perspective Document, 2006]

This has resulted in a national research movement and hence, the number of scientific documents has been extremely rising in the recent years. [ISC]

The number of scientific production has grown substantially in the recent years in Iran. At the end of 2009, the number of Iranian scientific papers was 17,000 out of 1,670,000 global scientific papers. In 2010, 1 percent of global scientific productions was from Iran, while this rate has been increased to 1.2% before the end of 2011. [ISC] Iranian scientists have recorded a total of 88,827 scientific papers during 1990 to 2010; while this record has been only 1387 papers during 1990-

2000. [ISC] Figure 1shows the growth of the percentage of Iranian papers related to world production.

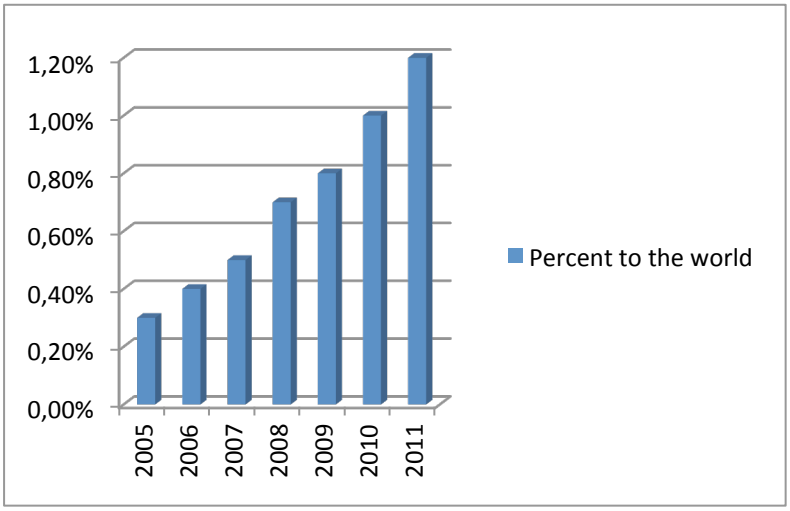

Figure 1- Iranian Scientific Outputs

The need for implementing a national research information system has been discussed in [Khoshroo M. J and Fatemi O]. One of the main requirements and infrastructures for this system is to have well established policies and guidelines.

Hence, the Ministry of Science, Research and Technology (MSRT) of Iran decided to form a policy making organization in this regard. The main tasks of such organization include making policies in information management, enforcing consistency among scientific information centers by providing standards [Lundu, 1984] and also by assigning different tasks and duties to the centers.

Commission of Science and Technology Information System, "CSTIS" has been formed in 2006 and has been active since then. The regular sessions of the commission has taken place every month.

The objectives and the structure of CSTIS are presented in the next section. The target research documents are listed in the following section followed by the achievements of CSTIS. The relation between CSTIS and SEMAT are presented next followed by conclusions and references.

2 CSTIS Structure and Objectives

The main objectives of CSTIS are declared as follows[CSTIS Regulation, 2008]:

- Determine the job description for subsidiaries, units, committees and work groups.
- Macro planning and policy making on collection, organization, processing, retrieval and dissemination of information and communication infrastructure, including:

- Planning for development of Islamic Republic of Iran's scientific and technological position in the region and the world.
- Designing and implementation of standards and guidelines system based on national information system macro-policies and capability of subsidiaries.
- Monitoring and evaluating system performance.
- Establishing science and technology information registration system.

The members of the commission include the research and technology deputy Minister, directors of the major scientific information institutions, the head of national library and experts in library and information science and information technology.

3 Research Information Documents and Standards

The best method to facilitate the integration of collected data from all research organizations is to define a common data model and standards. The proposed data model is called Iranian Research Information Format, IRIF, which is based on CERIF standard and is presented in section 5.

For every information management process there are three main challenges:

Collected data is complete? Collected data is up-to-date? Collected data is valid?

We note that registration systems for every research item are necessary to ensure the integration, completeness and validity of data. By registration system we mean that during the life cycle of the research item, it should be registered in the system.

The main categories of research items have been defined by CSTIS to be:

1. Theses and Dissertations;
2. Journal articles;
3. Conference papers;
4. Research project reports.

CSTIS developed the guidelines and instructions for registering, collecting, processing and disseminating of each type which will be presented in section 4.

4 The Achievements of CSTIS

The main objective of establishing CSTIS is to develop policies in order to make scientific information accessible for all researchers in the country. To achieve this goal, national instructions covering the three areas of information management have been developed by CSTIS. These areas include:

- Registering and collecting information
- Processing information
- Disseminating information

The following steps as shown in Figure 2 have been performed for developing these instructions for every type of the research items:

1. Developing the standards for the three areas of information management for every type;
2. Sending call for proposals to all national institutes to submit their proposals based on the established standards for managing that type of research information;
3. Selecting the institute in charge;
4. Having all research institutes to work with the institute in charge by publishing the instruction.

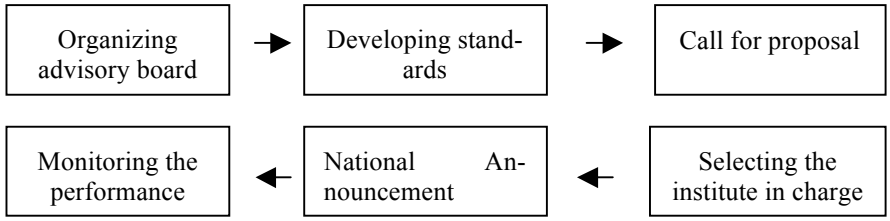

Figure 2 Steps for developing national instructions

The above mentioned model has been observed in standardization of thesis, peer reviewed journal articles, scientific conference articles and research projects and it is planned to be accomplished for scientific books, technical reports and other types of research items. These instructions are presented in the next section.

The other activity of CSTIS has been to form committees for specific topics concerning national research information system which will be presented in section 4.2.

4.1 Instructions:

For each instruction, an assigned organization is selected as the institute in charge to implement the registration and management system in order to coordinate these tasks. Highlights of these instructions are presented as follows:

The instruction for theses and dissertations:

a) Collecting and registration
   i. Allocating unique ID to each single thesis/dissertation.
   ii. Submitting both paper and digital format to institution in charge
b) Processing:
   i. Indexing using controlled vocabulary and thesaurus
   ii. Creating citation index.
   iii. Providing abstracts.

c) Dissemination:
    i. Presenting bibliographic information and abstract free of charge.
    ii. Providing downloadable full text for members including universities, research institute, as well as individuals; considering approved pricing in each case.

The instruction for pear reviewed journal articles

a) Collecting and registration:
    i. Publisher as the copyright owner is the authorized person to submit a (digital version of) successfully peer reviewed article to the institute in charge and to obtain ID.
b) Processing
    i. Indexing using controlled vocabulary and thesaurus
    ii. Creating citation index.
    iii. Providing citation analysis and related reports such as Impact Factor.
c) Dissemination:
    i. Presenting bibliographic information and abstract free of charge.
    ii. Providing downloadable full text for members including universities, research institute, and individuals considering approved pricing in each case.

The instruction for scientific conferences

a) Conference selection criteria:
    i. The articles should be peer reviewed
    ii. Accepted papers should be presented with question and answer session
    iii. There should be digital or printed proceeding for the conference.
b) Collecting and registration:
    i. Allocating ID to each single article, proceeding and conference.
c) processing:
    i. Metadata should include:
        i. Conference Information:
        ii. Title
        iii. Subject
        iv. Organizer
        v. Date of the conference
    ii. Article Information:
        i. Language
        ii. Type of presentation: Oral , poster,…
        iii. Abstract
        iv. Abstract in second language
        v. Index terms
    iii. Dissemination:
        i. Providing official website for each conference

ii. Presenting bibliographic information and abstract free of charge.
iii. Providing downloadable full text for members including universities, research institute, and individuals considering approved pricing in each case.

4.2 Committees:

With the instructions and guidelines the information management process has been regulated and the national institutes in charge have been assigned. However, there are other issues in national information system which should be considered. A committee containing a group of experts for each issue has been formed by CSTIS. A number of these committees are presented here.

4.2.1 Committee on Information Literacy

Committee on Information Literacy is in charge for planning and developing a formal program to integrate information literacy skills in different levels of academic education (elementary to higher education) by providing and implementing information literacy curriculum, course syllabus as well as providing infrastructures.

4.2.2 Open access promotion committee

The open access committee has been established to study and supply an appropriate provision for unimpeded access to research findings. This committee surveys international open access experiences and promoting open access in the country.

4.2.3 The committee of Webometrics

This committee proposes several strategies for improving and upgrading the current status of the web sites of universities and research institutions while implementing a competitive environment amongst universities and research institutes to improve their websites.

5 CSTIS and SEMAT (Iranian Current Research Information System)

In [Khoshroo and Fatemi], the architecture of SEMAT (National Current Research Information System for IRAN) has been presented. As previously mentioned CSTIS has been established to provide standards and required infra-structure for SEMAT. One of the first requirements of SEMAT is to define a common data model for all research items which should be employed by all research organizations. Our proposed data model is called IRIF, Iranian Research Information Format, and is based on CERIF [CERIF, 2010] standard.
In the next section the main characteristics of CERIF is presented followed by the customization of IRIF based on CERIF.

5.1 CERIF Characteristics

CERIF is a data model to support managing all research information and to enable research systems to communicate with each other. The first version of CERIF has been presented in 1991

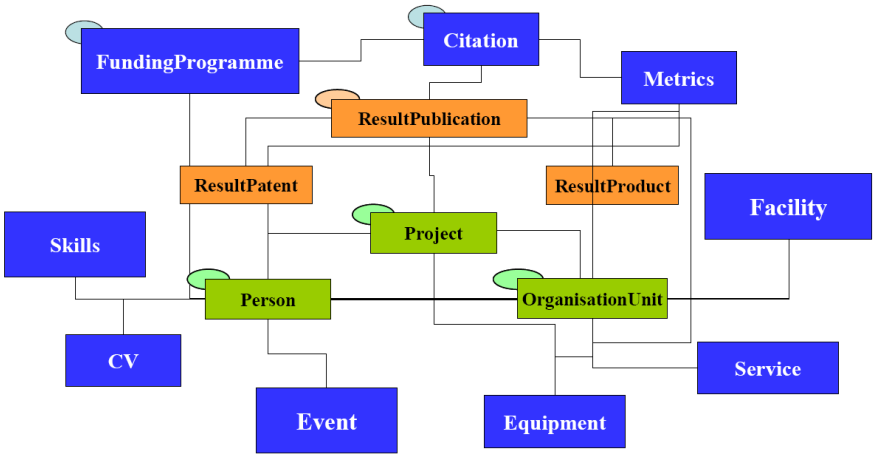

Figure 3 - Main Data Entities in CERIF [CERIF]

supporting only research projects. After the formation of euroCRIS [euroCRIS] in 2000, it is assigned as the standard body for maintaining CERIF. In CERIF2000 version, in addition to adding research entities such as person, organization and publication, classification layer has also been added.

Main data entities of CERIF2008 are shown in Figure 3.

5.2 IRIF Localization and Customization

CERIF as the base standard for data model has been adopted for SEMAT. However, there have been specific requirements which are addressed in IRIF. In the following sections only the differences between CERIF and IRIF are presented.

5.2.1 Second Level Entities

Two entities, namely EventInstance and Journal, have been added to data model. EventInstance is used for the events like annual conferences which have a general name for the event and are held periodically. Journal refers to the name of journal which includes several volumes.

5.2.2 Multi-lingual Entities

Only Persian and English languages have been adopted for the next version of IRIF.

5.2.3 Standards for Data Options

The standards used in CERIF for the alternative values of each field has been studied and a number of the standards are customized as shown in Table 1.

IRIF	CERIF	Item
ISO 639 standard	ISO 639 standard	Type of language
ISO 3166 standard	ISO 3166 standard	Type of country
Not implemented	The three-letter ISO 4217 code (SWIFT code)	Type of currency
No specific requirement	The NUTS (territorial units EU)	Type of address
Customized	ISCO stands for "International Standard Classification of Occupations"	Role of a person in an organization
Customized	UNESCO International Standard Classification of Education, level of education	Type of qualification of a person
IPO stands for "International Patent Classification"	IPO stands for "International Patent Classification"	Type and status of a patent
Use class 6 of UDC "Universal Decimal Classification"	Use class 6 of UDC "Universal Decimal Classification"	Type of equipment
ANSI/NISO Z39.19 – 2003	ANSI/NISO Z39.19 – 2003	Thesaurus

Table 1- Standards in IRIF and CERIF

6 Conclusions

Based on the necessity of defining and establishing national research information system and as a necessary infrastructure for research and innovation, a policy making body, CSTIS (Commission of Science and Technology Information System), has been established. The main task of this organization is to standardize all the research information management processes and work-flows. The successful development of instructions for registering, collecting, processing and disseminating scientific and technological information has resulted in having national repositories and national current research information system in the country.

References

Alidousti, S. (1996): National Information System Designing and establishment Model. Ettela' Resani; Irandoc's Technical Buletin; Volume:11; No. 4.

CERIF, Common European Research Information Format, http://www.eurocris.org/cerif/cerif-releases/

euroCRIS, The Europian Organization for International Research Information, http://www.eurocris.org

Horri, A. (2006): Information, Attitudes and Researches. 2nd edition. Nashre Ketabdar.

Horri, A.(2006): Information, System and Process.2nd edition. Nashre Ketabdar

Khoshroo M. J. And Fatemi O. (2010): SEMAT, National Current Research Information System for IRAN. In: CRIS 2010 conference, Aalborg, Denmark.

Kurshid, Anis (1982): Resource sharing of university Library in Pakistan ;Herals of Library Science, 21(3-4), July-Sept.

Lundu, Maurice. C.(1984): The National Information System (NATIS) Concept and the Development of Libraries in Zambia: Some Underlying Critical Issues, International Library Review, V16, Oct

Zandian, F.(2008): Scientific Information System; Chapar.

Web References

(Indian) National Science & Technology Management Information System (NSTMIS) http://www.dst.gov.in/about_us/ar05-06/mis.htm

(Iranian) Commission for Science and Technology Information System (CSTIS), http://irandoc.ac.ir/infosys/infosys.html

Iranian 1404 Perspective document http://edu1404.ir/fa/index.php?Page=definition&UID=2765

Islamic Science Citation (ISC), http://www.isc.gov.ir/

Contact Information

S. Omid Fatemi, Ph.D.

Director *Iranian Research Institute for Information Science and Technology*

Ministry of Science, Research and Technology, Islamic Republic of Iran
Email: fatemi@irandoc.ac.ir

Pouneh Mehrtash, MLIS.
Resource Sharing Office Manager
Iranian Research Institute for Information Science and Technology
Ministry of Science, Research and Technology, Islamic Republic of Iran
Email: mehrtash@irandoc.ac.ir