ISP KNOWLEDGE PORTAL : A RESOURCE DISCOVERY TOOL IN OPTICS

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Abstract

The need to structure knowledge is as important now as it ever has been. This paper has tried to study the ISP knowledge portal to explore how knowledge on various resources and topics in photonics and related areas are organized in the knowledge portal of International School of Photonics, CUSAT. The study revealed that ISP knowledge portal is one of the best portals in the filed. It provides a model for building an effective knowledge portal in other fields.

Keywords : Knowledge Portals, Knowledge-based Systems, Information Resources Management, Knowledge Discovery Tools, ISP Knowledge Portal

1. Introduction

Knowledge grows when shared and used. It is power—the power that has become the driving force in our economy. Knowledge management (KM) refers to the methods and tools for capturing, storing, organizing, and making accessible knowledge and expertise within and across communities. Communities of interest may be scientific, academic, business-oriented, or government-based. A fundamental aspect of knowledge management is capturing knowledge and expertise created by knowledge workers as they go about their work and making it available to a larger community of colleagues. Technology can support these goals, and knowledge portals have emerged as a key tool for supporting knowledge work. Portal is a web based application that provides personalization, single sign-on and content aggregation from different sources, and hosts the presentation layer of information systems [Cox][1]. A portal is a Web site or Web service that provides information content to serve a specific community.

2. Role of Knowledge Portal

Due to technology advances and the wide dissemination of information, users suffer from information overload and expect their organization to select the best and organize it effectively for their personal consumption. Organizations are responsible for creating innovative information systems for the dissemination and preservation of information and knowledge regardless of format. A Web portal or gateway is now the standard interface to aggregate resources and services through a single access and management point for these users. Hence Georgick [2]stated those online portals are the information shopping malls of the new millennium. Just as malls aggregate retail stores, restaurants,

theaters and other services for consumers, portals group and organize electronic resources for Internet users. Portals started as applications, typically Web-based, providing a single point of access to distributed on-line information, such as documents resulting from a search, news channels, and links to specialized Web sites. To facilitate access to large accumulations of information, portals quickly evolved to include advanced search capabilities and organizing schemes, such as taxonomies. Typically knowledge portals are single-point-access software systems intended to provide easy and timely access to information and to support communities of knowledge workers who share common goals. Knowledge portals play in supporting knowledge work tasks and the component technologies embedded in portals, such as the gathering of distributed document information, indexing and text search, and categorization [Ravin, and Byrd][3].

3. Characteristics of Knowledge Portal

One of the many useful applications of the Web is Web portals, often referred to simply as portals. The portals started from the idea that it would help users if services from a variety of sources could be gathered together and presented to them in a single place. A universal aspect of Web portals, however, is that they allow individuals to receive news, find and talk to one another, build a community, and find links to other Web resources of common interest.

A portal typically contains following:

· Intuitive and customizable web interface
· Personalized content presentation
· Security
· Communication and collaboration

In order for a portal to be successful, write Karvounarakis *et al.* [4], ''it must be a starting place for locating interesting content. Typically this content is submitted by members of the community, who often index it under some subtopic. Another means of collecting content relies on the content providers tagging the content with information that can be used in syndicating it''.

A portal must contain a user oriented and interactive service, quality and pertinence of contents, a platform for collecting, preserving, creating, mining, sharing and utilizing multilingual information.

4. ISP Knowledge Portal

Today, in most organizations, large and small, there is strong interest in identifying optimal strategies to leverage the intellectual capital of the organization's workforce. The International School of Photonics (ISP), Cochin University of Science and Technology, came in to existence in 1995 by restructuring and delinking the laser laboratories along with the faculty members of the laser group from the Department of Physics. Manpower development and establishment of research activities in photonics and related fields are the major objectives of ISP. The School has one of the best laser laboratories in the country. Research areas span from fundamental to applied fields in photonics and related

areas. At present ISP has collaborative research activities with various institutions in India and abroad.

4.1 ISP Knowledge Portal Home page

ISP Knowledge Portal contains extensive lists of links to various resources that may be useful to people working in photonics and related fields. These resources are arranged in 20 categories. This web site is a winner of the Golden Web Award 2003 – 2004. It is a high-level directory of optics data and information related web sites. Its objective is to help scientists and other laser optics experts in locating such data & information.
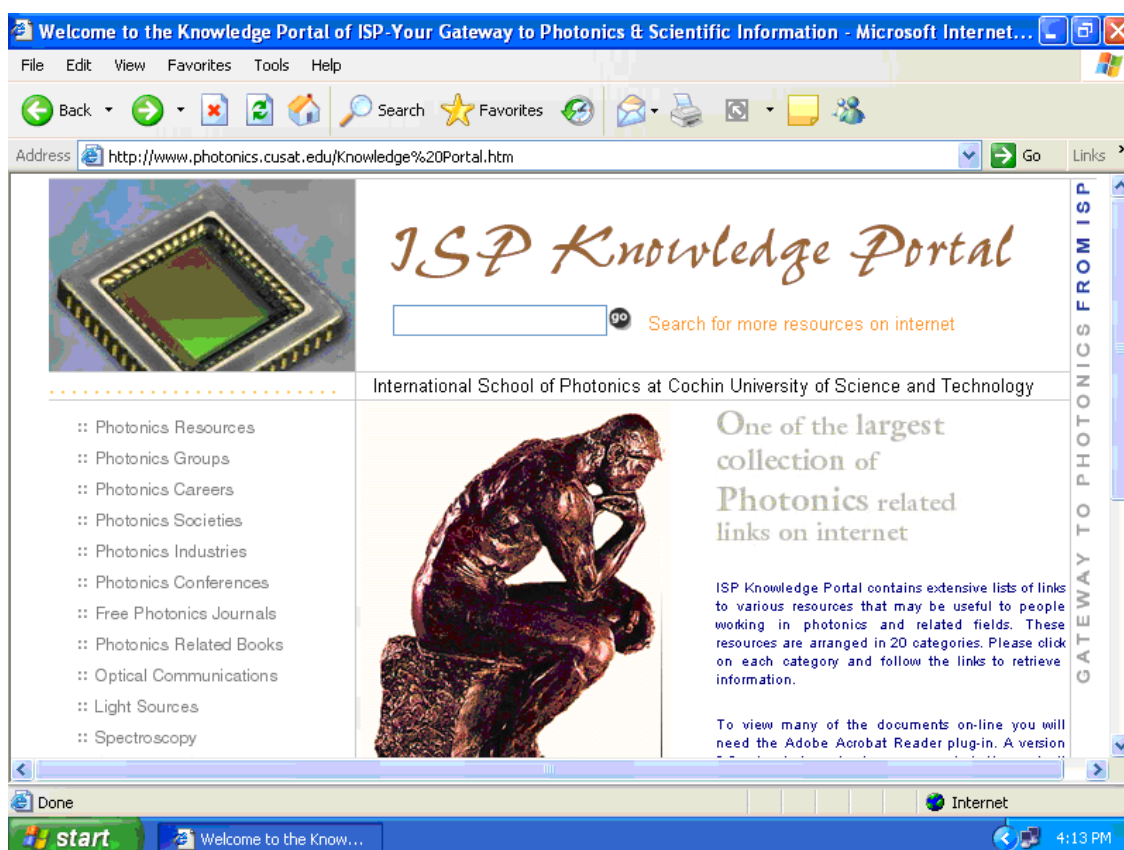

Fig.1 Screen shot of a Knowledge Portal of ISP
(http://www.photonics.cusat.edu/knowledge%20portal.htm)

ISP knowledge portal provides photonics experts a technologi cal opportunity to create a web-based information environment. This can be used as a forum to share information, disseminate information or discuss issues related to the optics and laser technology.

4.2 Features of ISP Knowledge Portal

ISP Knowledge Portal offers various resources useful to students, research scholars and common people who are working in photonics and related fields. The ISP knowledge portal enables users to browse through 20 categories of resources arranged in a systematic way to search the content.

4.2.1 Photonics Resources

Under Photonics Resources category information regarding the education facilities in Optics and related subjects, lots of learning resource links included like:-

OpticsEducation.org-Directory of degree programmes in optics (http://www.opticseducation.org/)

Opticsnotes.com-An index of optics and photonics resources (http://www.opticseducation.org/)

Online optical library with lot of links from optics2000.com (http://www.optics2001.com/)

SPIE's gateway to photonics: Virtual library for optical science and Engineering (http://spie.org/x4942.xml)

4.2.2   Photonics Groups

Besides links to a number of Optics related groups, it gives a list of International and national laser and photonics laboratories.

4.2.3   Photonics Carriers

The Careers available for Photonics aspirants is provided under the following links. http://www.photonicsjobs.com/index.cfm,

http://opticsjobs.com/,

http://www.photonicsemployment.com/,

http://www.optics.org/employment/.

 Along with the carrier links the websites provides links that give information on how to prepare for different jobs.

4.2.4   Photonics Related Books

Publisher wise list of Photonics related books were arranged giving information like ISSN number, title, year of publication, author and price. Books on Photonics available in amzone.com are also available in ISP knowledge portal.

4.2. 5   Photonics Free Journals

Links are provided to major publisher wise journals and news letters related to optics and photonics. Eg. ISI journal titles, American Institute of Physics journals, Institute of Physics journals,   American Physical Society journals, IEEE journals, Academic press journals, SPIE journals and Elsevier Science journals.

4.2.6.   Libraries and Archives

ISP knowledge portal also offers links to major libraries, archives, and information centres like:-

        INFLIBNET (http//web.inflibnet.ac.in)
        The internet public library (http://www.ipl.org/)
        The Australian libraries gateway (http://www.nla.gov.au/libraries/)
        E-Library: online books (http://onlinebooks.library.upenn.edu/webbin/book/subjectstart?Q)
        Electronic journal delivery service from ICTP (http://www.ictp.trieste.it/ejournals/)
        Gateway to Europe's National Libraries (http://www.theeuropeanlibrary.org/portal/index.html)

4.2.7.   Conference Calendar

Links are offered to national and international conferences in optics and related fields. The links are also directing the users to past conferences held on ISP.

4.2.8.   Just For Students

Under this heading resources about writing a PhD Thesis - Guidelines Poster Presentation Tips for Scientific Writing, Guidelines for Oral Presentation, Science and Technology Quotations Search Engine List, Online Translation and Language Support, Computer and Software Tables, and Calculators and Converters are provided.

4. 3.   Other Interesting Features

Websites related to science related topics like scientific American-explore, Nobel e-museum, and Albert Einstein archives are given. List of higher education institutions and scholarships like Netherlands international scholarships, Nuffic gateway to higher education, Fulbright scholarships, ADS scholarships are also provided.

The portal is enriched with thesis Collections of INFLIBNET-Indian theses database, Thesis and dissertations from ETD, Digital library of MIT theses, UNSW theses, collection, Dissertations Abstract, Optical communication and Spectroscopy resources resources of Wavelength Division Multiplexing (WDM) , Optical Networking from IBM, Optical Networking Tutorials IR spectroscopy tutorial from US environmental protection agency, Ultraviolet and visible absorption spectroscopy

tutorial Scientific software Optical design software links Commercial image processing software links Optical design software links   Optical component design software Optics software links from dmoz open directory . The website also provides Multilingual support. Full texts of journal publications of ISP community and full text of theses awarded by the ISP.

5. Conclusions

Knowledge portals are influencing the way people select and use knowledge. It brings them resources and links that are essential to learning and scholarship. The ISP knowledge portal is a best model for designing and developing knowledge portals in various subjects and communities. It provides comprehensive data for exploring the subject more by the different levels of users in the subject.

References

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