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Design of Publishing Information Service System Based on Web3.0

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Abstract

Due to the shortcomings of web2.0 technology lacking efforts to support the discovery process of scientific research and reuse of existing products, a complete set of universal semantic web-based publishing information service framework is proposed based on the currently successful case of digital publishing architecture and technology. The publishing information service system established under the framework can automatically extract key concepts of the resource content.

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1. Introduction

A certain extent, the application of web2.0 technology enhances the content quality and diffusion rate of publishing information service. But it lacks efforts to support the discovery process of scientific research and reuse of existing products. The emergence and development of web3.0 changes the publishing process involved in various aspects: facilitating the readers, expanding the publisher production situation, changing the method of content organization, increasing content distribution efforts, making the computer understand contents of the article, mining the tacit knowledge and promoting the new findings[1] [2].

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Ideal semantic web-based information service system involves to promoting content --- including a wide range of data and knowledge generated by the publication process, full text of journal indexing, keywords and other records of the content. It's able to connect to the book content, laboratory sites, factual data and high-level comments.

Vast amounts of information are interlinked, and users can access these linked data through the one-stop portal. To accomplish these functions, a series of standards should be developed, using the semantic web to describe resources and services, achieving the release of contents of publishing information service system. It can effectively achieve interoperability, integrate resources and service and support data mining [3] [4].

2. Current Research

Semantic web technologies make the published content releasing and receiving more and more convenient to use and showing intelligence. The implementation of these technologies has become a part of the publishing industry. Now publishers are positively rolling out the interpretation of linked data, data mining, intelligent retrieval and data analysis services for the content [5] [6]. For example, Chinese Publishing House developed *Comprehensive Mirror for Aid in Government Analysis System*[7]. The system is based on ontology and semantic analysis technology, through the text processing and knowledge recombining to build an open knowledge service system. It realizes the knowledge-based content retrieval and knowledge discovery used by semantic analysis technology. It is a new tool of reference, retrieval and using antique book.

In the field of press and publication, it focuses on news events including time, place, characters, causes, event results and other core information. Using of semantic web technologies, any of news can be made into a number of special topics. Subject content of the special topic is not limited the site, and hot news of other sites can be linked automatically. For example, *The Wall Street Journal* (http://www.wsj.com) introduces U.S. News, European news, Asian news, technology news, business news, stock fax, expert commentary and so on. Semantic web technologies associate with news events, people, events and the trend of events. The value of information is greatly increased [8].

In addition, the academic site StemBook (www.stembook.org) based on domain ontology provides accurate explanations and instructions to a variety of technical terms in the articles. And it can be extended unlimited class and release open links from articles to related resources of a variety of disciplines or areas [9].

3. System Architecture

Semantic-based publishing information service system supports the expansion of the publishing process and the core data index. It keeps the contribution that scientists spread of the scientific and cultural knowledge. The architecture is divided into four levels: resource layer, annotation layer, index layer and user layer. It is showed in figure 1.

3.1. Resource Layer

Resource layer consists of bibliographic information of articles (such as abstracts, titles, authors and publishers), other units of structured information (such as tables and pictures in the articles), experimental data sets, the articles in the involved subjects as well as to achieve the results obtained related to the data set. Resource layer provides abstracts and full texts published by the key elements of digital content. Public API can be used to retrieve the text of these elements metadata resources, and track the original elements and elements id.