CASE STUDY

Fuji Electric Information Services Applies Xpriori XMS to QMS Management Systems — Greatly Simplifies Frequent Amendment of ISO Documents

Conventional RDBMS was inadequate for QMS demands. Innovative Xpriori XMS meets criteria for new XML-based, low cost information system

Company
Fuji Electric Information Service Co., Ltd, Japan

Industry
System Integration, including system construction, software development and equipment sales.

Web Site
www.fujielectric.co.jp
www.fuji-web.com

Background
F.E.I.S found that its RDBMS was adequate for conventional filing of documents, but they needed a better system that did more than "file and fetch" They wanted to use the flexibility of XML to manage their data with more flexibility and efficiency.

Challenge
The Company required an XML-based QMS management system that was as fast as RDBMS but allowed greater flexibility to alter and search QOS documents. The system had to be low cost and easy to maintain.

Solution
Xpriori® XMS

Why XMS?

- Highly flexible data manipulation and management
- High-speed search capability and steady performance
- Automatic indexing at the element level
- Patented DPP technology

Fuji Electric Information Service Co., Ltd , decommissioned its old document management system, which was based on a RDBMS environment, and it constructed a QMS management system with Xpriori XMS installed onto the database. The flexible data management made possible by XML resulted in a great reduction in the work and cost of maintaining ISO standard document data, which requires frequent changes to headings.

The Setting

Fuji Electric Information Service Co., Ltd ("F.E.I.S.") was established in 1994 as a wholly owned subsidiary of Fuji Electric Holdings Co., Ltd. Based on the diverse expertise of the Fuji Electric group, F.E.I.S. now deals with information System Integration, and document and office services, and the Company has broadly expanded to cover everything from system construction and software development to advertising, printing, event planning and OA equipment sales.

In order to increase efficiency of the business and improve the quality of output, F.E.I.S. decided on a complete overhaul of its previous in-house document management system that was based on RDBMS. They constructed a new QMS management system with the XML DB, Xpriori XMS, at its core.

> ***"Our company has been using a document management system based on a RDBMS environment for around ten years now, but this system simply files away the Word or Excel documents and doesn't allow for searches of the actual content of the documents. This meant that detailed management of the company's resources wasn't possible, and the information wasn't being used effectively. With the obtainment of ISO9001 certification, we began to think about a new system. We decided to change the way we manage our ISO standard documents from entering and managing data in Excel, to using our intranet and entering the data from the web and managing the documents as a database."***
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> ***—Mr. Masashi Mizoguchi, F.E.I.S. Director of Information SI Business Division Development Center Development Group No. 1***

ISO standard documents, by their nature contain a large number of headings, and even when a format has already been designed, in headings are frequently added or changed while the project is running, according to the wishes of each department.

> ***"QMS documents have at their center the idea of 'making things better'. So even if the document format for a project has been set, it is only considered to be a guideline template. As you use a QMS document, you make changes to it after listening to the opinions and wishes of each department. This was nearly impossible with the RDBMS, which requires tables to be set."***
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> ***—Ms. Mikiko TakahashiF.E.I.S Manager of the Information SI Business Division Development Center Development Group No. 1***

The Opportunity

Clearly, a more flexible document management solution was needed; for this reason, F.E.I.S. specified that the new system would be XML-based. The company had been watching the development of XML technology for a few years and recognized its significance in F.E.I.S.' technological strategies for the future. Low cost and innovation were also key considerations in choosing the new database. "Our company was lacking in expertise on XML, but we thought by learning this flexible and expandable technology, we would be able to make good use of it in the future for our business, " says Ms. Takahashi. The requirements for the construction of the system were given to eXism Inc., a company that has much experience in document related XML solutions. Ms. Takahashi requested that the following factors be considered in the new XML-based system design: 1) more efficient management of documents and re-use of formats, 2) mechanism for progress management / accounts management, 3) a connection with the key system, and 4) a search speed at least as fast as that of RDBMS. The database suggested by eXism Inc. that satisfied all of these requests was Xpriori® XMS.

The Solution

> ***"The most important factor for a database is the processing speed. Because the nature of the XML DB system allows its structure to be changed freely, searching the database differs from the RDBMS system where factors are picked out directly. Everything that corresponds with the specified search term is processed through, and depending on the amount of data or the searched term, the search times can become slow. In order to make up for this, an "index" - a table of contents for the structure of data – is created, but for the standard XML DB systems up until now, the setting up of this index meant a great deal of work. However, Xpriori has a full auto indexing function which automatically sets up the index as the data is stored, making it possible to run searches at high speed. This was the definite deciding factor in choosing Xpriori XMS."***
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> ***— Mr. Kazuyoshi Tokue, Managing Director, eXism Inc.***

This full auto indexing function is possible due to an original patented technology called DPP (Digital Pattern Processing) developed by Xpriori and owned by Xpriori, LLC. First, when the data is stored, the DPP creates a uniquely shaped icon for every tag. When it comes to searching the database, the query is then also given an icon, and because the two icons match mathematically there is no need to search through the index domains, and an ultra high-speed search can be carried out.

During development of the system, F.E.I.S. dispatched one of its own engineers to work in collaboration with eXism Inc. Ms. Kawabe, who was involved in the development commented on the benefits of Xpriori XMS:

> ***"When it was first being put forward, it was difficult to imagine how the XML tags would be stored directly onto the database. But there were no problems once we began to use it. In terms of entering data and searching for data, it is no different from RDBMS. However, once the document format is changed, the difference compared to RDBMS becomes clear: with RDBMS, you have to change the structure of the document each time, and this takes up a great deal of time and money. With Xpriori® XMS, on the other hand, the number of tags simply increases and there is no need to define schemas. It responds quickly and flexibly even when it is updated, and we have been very satisfied."***

As for the search speed that was of some concern, after testing around one hundred thousand items of data in advance, the engineers considered Xpriori XMS' performance to be excellent. Futhermore, Mr.Tokue says, properties such as "Well Formed XML Support" and "Large Scale Data Support" were also part of the appeal of Xpriori® XMS. And with no need to re-tune the system as it runs, Mr. Tokue feels confident, knowing that he has been able to provide F.E.I.S. with a system that is meets all of its requirements.

The Result

The QMS management system that was introduced is now running on the intranet of the company, and the project management documents can be accessed through a browser. By making the interfaces similar to Excel spreadsheets, the transition from the previous Excel system was smooth and special training for the staff was not necessary. Furthermore, a document duplication function has been installed to cut down on the effort of entering data for similar cases. The entered data can be downloaded onto Excel, making the structure of this system efficient for paperwork operations, such as getting approval stamps.

In the future, the company is planning to use this system as a base for the unified management of data for the entire company.

> ***"From design specifications to plans, images, catalogues, manuals, user instructions, or any other documents, we would like to have them all in a unified management system under XML. This will make effective use of them by, for example, converting them into HTML and presenting them on the web. We think that by doing so, our business will have the opportunity to expand. In that sense, the fact that Xpriori XMS does not rely on foreign products and that Mitsui & Co. is committed to providing support themselves is extremely reassuring."***
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> ***—Mr. Mizoguchi, F.E.I.S.***

The flexibility and expandability of Xpriori® XMS is bound to play an effective role in the value-added solutions provided by F.E.I.S. in the future.

Xpriori, LLC thanks our General Distributor in Japan, Mitsui and Co., Ltd., MKI Mitsui Knowledge Industry, for its cooperation in producing this case study. For more information about Mitsui and Co., Ltd., visit http://www.Xpriori.jp

For more information about Xpriori, including our product brochures, white papers, and company information, please visit us at www.xpriori.com.

About Xpriori

Xpriori is a technology innovator and provider of a self-constructing XML database and related products that are powered by the company's patented Digital Pattern Processing technology.

Xpriori's products allow organizations to rapidly respond to changing business requirements by eliminating costly database development time and enabling the creation of adaptable applications – business applications that easily adapt to heterogeneous and ever-changing data sets.

Xpriori is privately held and headquartered in Colorado Springs, Colorado. For more information, visit us on the web at

www.xpriori.com.

Xpriori XMS

Xpriori® XMS, XML Information Management System, is a self-constructing native XML information management system built on Xpriori's patented Digital Pattern Processing technology (DPP) for the purpose of persisting, managing and developing solutions with XML.

Xpriori Content Manager, XCM, is only one of many applications built to leverage the power of DPP and XML using Xpriori® XML Information Management System.

With Xpriori® XMS, changes in business requirements or upgrades in functionality can be accomplished without traditional application and information design, significantly increasing an application's extensibility and flexibility while dramatically reducing its time to market and total cost of ownership (TCO). Using a pattern-centric approach, Xpriori customers realize a competitive advantage through their ability to deploy high-performance, customizable applications that fully leverage valuable XML information. Please contact Xpriori to find out how we can help you to build XML-centric applications.

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