Case Study: How City University of Hong Kong uses Suntek Content Management System to Create an Informative and Easy-to-Maintain Research Web Site

Objective: The overall objective of the project is very simple, i.e., City University wants to publicize research conducted at the University with a web site containing details of the research projects.

Challenges: To make the web site user friendly, the University wants all projects categorized into subjects and a powerful search engine for users to search the projects using simple keywords or by specifying conditions on specific fields.

Since project information contains English, Traditional Chinese and Simplified Chinese, the system must be able to input, display and search all three languages, which excludes most, if not all, overseas vendors in content management systems.

Since project data are provided by faculty members who are often unwilling to maintain the data by themselves, the web site must be very easy to maintain by non-technical staff. Workflow management should support the basic content life cycle, starting from content creation, to content editing and approval, and to content publication and retraction.

The content management system must be flexible enough to support the dynamic content model of the University. For example, project categories, academic departments, and academic titles may change from time to time. The content management system must allow the system administration to make corresponding changes on the web site easily.

Web site: http://www.cityu.edu.hk/applied_research/

How Suntek meets the challenges

Suntek Content Management System (CMS), an award-winning total solution for web content creation, management and search, is designed to address the need for handling multiple languages, especially Chinese, which includes Traditional and Simplified Chinese, as well as the Hong Kong Supplementary Character Set. Its powerful search engine allows indexing and search of free-text and structured data, including attachments written in rich text formats (e.g., Office WORD, PowerPoint, Excel, PDF, Postscript, etc.) which could contain Chinese as well.

Suntek CMS provides the CMS user a web-based interface to enter data in a structured way and supports workflow management to meet the most demanding requirements on user friendliness and ease of use. Suntek CMS can generate web pages with rich graphics designs from the structured data (see figures below). In addition, key data (e.g., project category and title) can be extracted and inserted into other pages

to generate table-of-contents pages. This ensures data consistency across the whole web site – a great pain for most web site administrators.

Return on Investment

The City University Applied Research web site contains several hundred research projects frequently updated to reflect the intensive research activities in the University. With Suntek CMS, the whole web site is maintained with high quality by one non-technical staff, from data entry to the final web publishing.

With Suntek's Workflow Management, data entry and maintenance could potentially be carried out by the researchers themselves, with an editor to approve any new data or changes, to further enhance the timeliness and cost-effectiveness of the operation.

Creating a Project Page

The CMS administrator first defines the data fields of a project. The CMS automatically generates a web-based input page for users (or the administrator himself) to enter data for each project.

Producing the Final Web Page from Structured Data

In addition, the CMS administrator defines an output template for displaying the structured project data in the final HTML format, which could includes rich graphics design to enhance the look-and-feel. An output template is essentially an "empty" HTML page that contains only the graphics but without any data. The CMS fills in the data and adjusts the layout automatically to fit the data (e.g., a long project title).

Programmatic Control of Display Layouts

The output template is a lot more than a static HTML skeleton. It provides flexible programmatic control on the display layout according to the value to be displayed. For example, the "Stage of Technology Transfer" in the last figure is displayed graphically as an arrow with the corresponding stage in a darker color, while the value input by the user is numeric (from 1 to 5).

Another example illustrating the need for intelligent control of the display format is when a field does not have a value, the header or label of the field will be omitted altogether. For example, when a project does not have any patent, the whole table, including the header row, will not be shown.

Maintenance of Data Consistency among Pages

A web site is necessarily dynamic. Otherwise, there won't be need for content management. In the case at hand, to help user navigate the site, pages were created to contain project categories and the list of projects in each project category. Thus, when projects are added, updated and deleted, it is necessary to update the project list as well. The CMS can be configured to automatically insert key data of the new project into the appropriate project category as shown in the figure below.

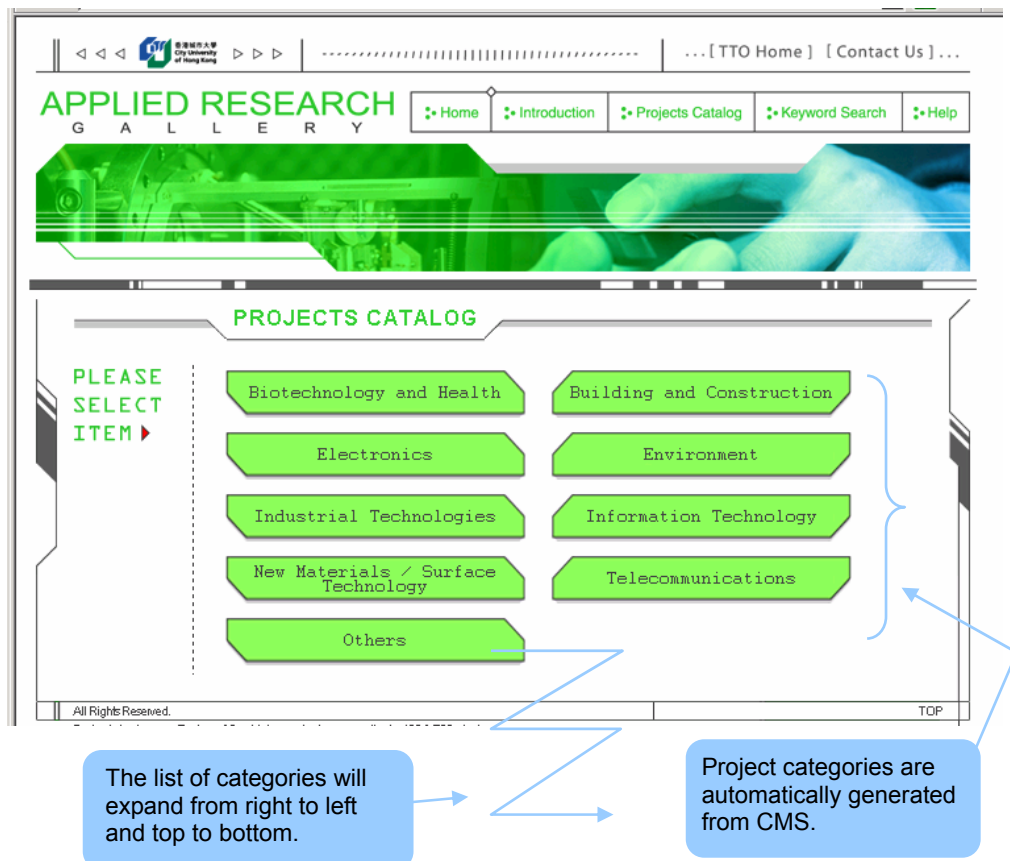In addition, new project categories, academic titles and departments, etc., could be introduced. Consider the creation of a new project category. The CMS administrator only needs to input once on the CMS the new project category. The CMS will automatically perform several updates:

- The new project category is included in the project catalog page (see figure below)
- The pull-down menu for users to select the project category during data entry is updated to include the new project category
- The pull-down menu on the search engine page is updated to include the new project category.

The same thing is done when a new academic title or a new department is added. Automatic updates can be configured according to the need of the web site.

The list of categories will expand from right to left and top to bottom.

Project categories are automatically generated from CMS.

Search Engine

A search engine provides users convenient access to the project data. The Keyword Search box allows users to input keywords and find all projects containing the keywords in *any* field of the project record, whereas as Field Search accepts precise search conditions on individual fields of the project. The search engine supports search on Chinese, phrase, queries with logical connectors (e.g., AND, OR, and NOT) and wildcard characters, etc. The search result displays key data of the projects in a structured view and allows users to click into each field to explore further details.

Putting a Whole Web Site on CD – with Search Functions Too

To make the project information even more accessible to users, Suntek CMS ensures that the whole web site can be transferred to and subsequently accessible on CDs. With index information generated from the CMS, users can enjoy the same search functions to access records on the CD as they do on the web site.

KEYWORD SEARCH

READY FOR SEARCH ▶

Keyword Search   [ ]   [SEARCH] [RESET]

Field Search

Principal Investigator: chan
Department: All
Research Area: All
Project Title: electronic
Stage of Technology Transfer: All

[LIST ALL]   [SUBMIT] [RESET]

Search project data by field; multiple conditions can be used.

Search across all fields.

SEARCH RESULTS

🔖 Principal Investigator	🔖 Department	🔖 Project Title
Professor CHAN, Yan Cheong	Electronic Engineering	Centre for Electronic Packaging and Assemblies Failure Analysis and Reliability Engineering (EPA Centre)
Professor CHAN, Yan Cheong	Electronic Engineering	Conductive Adhesive Technology Programme for Fine Pitch Electronic Interconnect

[SEARCH AGAIN]

Click on the PI's name to return all projects led by that PI; click on the department name to list all projects in that department.

Click on a project to list the project

Suntek Computer Systems Limited
Unit 822, Level 8, Cyberport 1, Pokfulam, Hong Kong
Phone: (852) 2784-7415
Fax: (852) 2784-7413
http://www.suntek.com.hk/
suntek@suntek.com.

2002 IT Excellence GOLD Award

2002 Cyberport Award

2000 Best Web Technology of the Year

2000 Best 10 Local Web Sites