



# Unearthing dynasties of knowledge

[» Return to original page](#)



## Overview

1. » Open source facilitating open access
2. » Helping Chinese treasures interact with the world
3. » From stadium to screen
4. » Establishing the knowledge nation

Since their discovery in 1974, China's mighty terracotta warriors, undefeated for over two thousand years, have slowly fallen victim to the ravages of modern life. Faded due to the effects of warfare and natural erosion, and with climate and environmental changes increasing the threat of oxidization and dehydration, these masterpieces of Chinese sculpture inch ever closer to extinction.

But the same destructive world that the warriors and their horses found themselves a part of back in 1974, is providing technology solutions that will ultimately ensure their immortality. Thanks largely to the efforts of HP Labs.



Terracotta warrior

### Open source facilitating open access

Known as the DSpace platform, the technology was developed in October 2002, and is the product of a technical partnership between HP Labs and MIT Library. It is an open source digital archive system, capable of collecting, storing, indexing, saving and re-releasing permanent research data in any digital format. The system not only enables readers to view materials via the Internet, from anywhere around the world, it allows faculties, students and researchers to share precious, previously unavailable, materials and collections.



Photographing relics

To ensure the technology could be made available to a larger number of users, HP Labs and MIT released DSpace as open source globally, and created a not-for-profit organization — The DSpace Foundation — to provide support. Today, at least 265 universities, libraries, museums and research centers, globally, have stored more than one million documents on the DSpace platform, at no cost to those who access it.

China is currently among DSpace's most enthusiastic participants, with officials and researchers choosing DSpace to support two national initiatives. The first is a digital museum project to archive knowledge from the nation's top 18 universities. The second is an ambitious effort to capture and store photos, audio and video of sporting achievements, as well as Chinese cultural artifacts such as the mighty terracotta warriors, for the Virtual Olympics Museum.

### Helping Chinese treasures interact with the world

Working alongside HP researchers and the Chinese Ministry of Education, 18 top Chinese universities are using DSpace to archive knowledge about biology, anthropology, the geosciences and technology. The China University Digital Museum Project digitizes not only scholarly documents, photographs and audio and video content, but the actual artifacts in museum collections; often in three-dimensional

formats.

### **From stadium to screen**

The same technology used to archive China's treasures is being utilized to create the country's digital Olympics showcase, the Virtual Olympics Museum (VOM).

Using a standard Internet connection, visitors worldwide will be able to access digital photos, audio and video clips and virtual environments providing information about modern and ancient Olympic competitions and traditional Chinese sports and culture.

The sporting side of what should prove to be a compelling exhibition, include four key elements: Beijing Olympics, Modern Olympics, Ancient Greek Sports and Ancient Chinese Sports.

Leading the charge culturally are the famed terracotta warriors. Researchers have already performed 'wraparound' scans of many of the sculptures, enabling museum visitors to turn the warriors in 3D and view them from various angles — up close and in fine detail.

Long after the closing ceremony however, and crucial for future generations, these unique 3D images can also be used by researchers to identify and monitor degradation; work that, due to rigid environmental restrictions, are not possible 'in person' at the physical museum.

The VOM, which is supported by HP's University Relations team and being developed by technologists at Beihang University in Beijing, will take up an awesome two terabytes (about two trillion bytes) of content.

### **Establishing the knowledge nation**

But the closing ceremony of the Beijing Olympics won't spell the end of China's involvement with DSpace. Its efforts thus far have been so successful that officials plan to build a similar virtual museum called 'China Digital Science & Technology Museum' over the next three to five years which will encompass 300 sub-museums. The museum is designed to preserve, integrate and share national science dissemination resources and boost the quality of public access to scientific documentation.

And China is also playing a role in the development of DSpace itself. For the past two years scientists from the Beihang University have attended the DSpace International Workgroup Annual Meeting to discuss the successful extension and application of DSpace in museum digitization with R&D personnel from around the world.

Professor Xukun Shen, from the University said, "Attending the DSpace Workgroup Meeting enables the Beihang University to step onto the international stage for the first time ever in this area, and to showcase our achievements to the whole world."

Led by an 8000-strong terracotta army, and the energetic, innovative efforts of some of the country's best scientific minds, China is again forging a flourishing dynasty — built, this time, on information and education, and with a brilliant legacy of knowledge.

[» Return to original page](#)

[Privacy statement](#)   [Using this site means you accept its terms](#)

© 2008 Hewlett-Packard Development Company, L.P.