PNC 2009 Annual Conference

Impact of Digital Archives on Humanities

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Early Initiatives at Academia Sinica

- Full-text Databases
- Digital Archives
- GIS Platforms

Full-text Databases

- In July 1984, Dr. Ching-chun Hsieh, the Director of Academia Sinica Computing Center, with a vision of narrowing the gap between newly developing information technologies and traditional Sinology studies, initiated a program for enhancing the Chinese language processing capability by collaborating with the Institute of History and Philology to establish the Twenty-five Histories Full-text Database.

- Consequently, with the participation and collaboration of other Institutes, such as Modern History, Taiwan History, Linguistics, Chinese Literature and Philosophy, as well as Information Science, more full-text databases were established in Academia Sinica. By 1997, these full-text databases, known as *Scripta Sinica*, including the Twenty-five Histories, Thirteen Classics, Essays of Statecrafts in Qing Period, Taiwan Documents and Local Gazetteers, Chinese novels and dramas, as well as Buddhist and Taoist texts and other ancient and modern texts, had accumulated more than 350 million characters available on-line.

- In March 1997, President Yuan-tseh Lee of Academia Sinica announced the opening of selected collections from *Scripta Sinica* for free access to teachers and students at all levels from elementary schools to universities in Taiwan. Many foreign universities also requested for accessing *Scripta Sinica* by signing agreements with Academia Sinica.
- For celebrating the 80th Anniversary of Academia Sinica and Institute of History and Philology, the databases of *Scripta Sinica* were opened to all organizations and individuals who registered for free access in Taiwan Area from 1st January 2009.

  (See http://dbo.sinica.edu.tw/~tdbproj/handy1/)

相關訊息 | 安裝造字 | 機構使用申請 | 個人使用申請 | 勘誤 | 中央研究院

為慶祝本院及本院史語所成立80周年,「漢籍電子文獻資料庫」自98年1月1日起免費授權國內團體與個人使用,即日起歡迎申請。

瀚典全文檢索系統 2.0 版

有帳號的用戶請 認證

若有錯誤指正或改良建議
歡迎電洽 (02)27899251 張小姐或寄電子郵件至
mailto:peiyi@gate.sinica.edu.tw?cc=linshi@sinica.edu.tw,kingdomx@gate.sinica.edu.tw&subject=漢籍電子文獻
錯誤指正或改良建議

http://dbo.sinica.edu.tw/~tdbproj/handy1/

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Digital Archives

- In 1996, Dr. Kuo-shu Yang, Vice President of Academia Sinica, proposed to set up a Committee of Archival Documents to take charge of digitizing images of historical archives. With technological assistance of the Computing Center under Directorship of Dr. Simon Lin, nine Institutes in the Division of Humanities and Social Sciences participated in this project and I was appointed to serve as the coordinator.

- Under this project, historical archives preserved at the participating Institutes were gradually digitized, including the Grand Secretariat (Ming-Qing) archives, the Republican diplomatic and economic affaires archives, private land deeds and contracts, survey data of religions, Taiwan archaeological relics, and financial archives of some business companies.

- Some archives preserved at other institutions were also digitized through collaborations. For instance, the election archives in 1948-1980 preserved at the Taipei Civil Affairs Department and the Sotokufu Archives of Japanese Colonial Period (1895-1945) preserved at the Taiwan Historica.

- Moreover, not only archives but specimen of plant, fish and shellfish preserved at Academia Sinica were also brought to digitization under this project.

- These digital archives with searchable categories provide a new and convenient environment for utilizing the original documents in research. These databases are managed by related Institutes and available on their websites. For instance,

http://archive.ihp.sinica.edu.tw/mct/
http://www.mh.sinica.edu.tw/digital/digital.asp
http://www.ith.sinica.edu.tw/data.htm
https://sotokufu.sinica.edu.tw/sotokufu/
http://www.ioe.sinica.edu.tw/chinese/database.htm
http://ianthro.tw/~pingpu/

GIS Platforms

- Academia Sinica also pioneered in establishing digital databases of maps by the application of geographic information system (GIS). With an initiative of Dr. I-chun Fan in 1996 until the establishment of the Center for Geographic Information Science in 2006 within the Research Center for Humanities and Social Sciences, many GIS databases had been created. Of these, the Chinese Civilization in Time and Space (CCTS, http://ccts.sinica.edu.tw/) and the Taiwan History and Culture in Time and Space (THCTS, http://thcts.sinica.edu.tw/) stand out as the most important platforms for applying GIS to studies of humanities and social sciences.

National Programs

- Three pilot projects during 1998-2001.
- National Digital Archives Program (NDAP) launched in 2002.
- National Science and Technology Program for e-Learning started in 2003.
- Taiwan e-Learning and Digital Archives Program (TELDAP) began in 2008.

Development of TELDAP
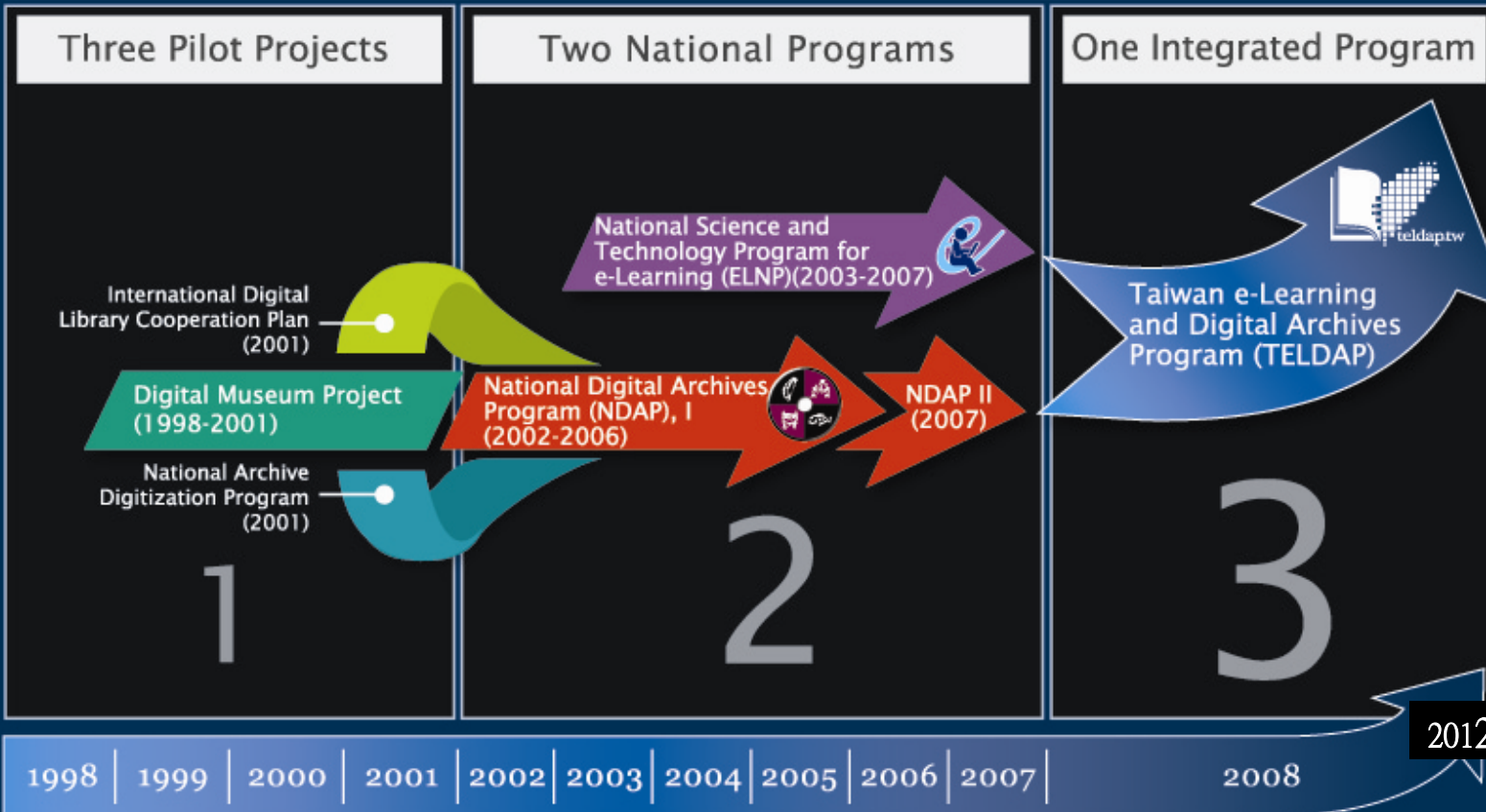
National Digital Archives Program (NDAP)

- Following the three pilot projects during 1998-2001, the National Science Council launched formally the "National Digital Archives Program (NDAP)" in 2002. During this transition period, Academia Sinica set up a Committee of Digital Archives in 2000 to replace the Committee of Archival Documents. When the NDAP started in 2002 and Vice President Yang was appointed the Program Director, Academia Sinica was well prepared to take part in this national program with its experiences in digitization for nearly twenty years.

- In addition to its own budget allotted for digitization, Academia Sinica also obtained funding from the National Science Council to carry out the NDAP projects in the first year, and the outlays were incorporated into the budget of Academia Sinica in the following years. Thus, Academia Sinica is well supported and has more confidence to maintain sustainably the digital archives in the future. Academia Sinica Digital Resources completed under the national program are available in eleven collections at http://digiarch.sinica.edu.tw/index.jsp. They are:

- **http://digiarch.sinica.edu.tw/en_3-1-2-1.html** (Digital Archives Program of Formosan Aborigines, Phase II)

- **http://digiarch.sinica.edu.tw/en_3-1-2-2.html** (Taiwan e-Learning & Digital Archives Program-The Project of Historical and Cultural Heritages developed in the Institute of History & Philology)

- **http://digiarch.sinica.edu.tw/en_3-1-2-3.html** (Digitization & Value-added Project of Taiwan Historical Archives)

- **http://digiarch.sinica.edu.tw/en_3-1-2-4.html** (Digital Archives of Taiwan Fishes)

- **http://digiarch.sinica.edu.tw/en_3-1-2-5.html** (Digital Archives of Indigenous Plants of Taiwan)

- **http://digiarch.sinica.edu.tw/en_3-1-2-6.html** (Digital Archives of Famous Personages, Diplomatic Records, and Economic Records in Modern China)
- **http://digiarch.sinica.edu.tw/en_3-1-2-7.html** (Language Archives)
- **http://digiarch.sinica.edu.tw/en_3-1-2-8.html** (The Map and Remote Sensing Imagery Digital Archive Project)
- **http://digiarch.sinica.edu.tw/en_3-1-2-9.html** (Digital Archives of Malacofauna from Taiwan)
- **http://digiarch.sinica.edu.tw/en_3-1-2-10.html** (Technology Development for Digital Archives)
- **http://digiarch.sinica.edu.tw/en_3-1-2-11.html** (Taiwan Ethnography Video and Audio Archive)

The Integration of Two National Programs - TELDAP

- The first phase of the NDAP lasted for five years until 2006 and the second phase started in 2007. But in 2007, a proposal for integrating the "National Digital Archive Program" with the "National Science and Technology Program for e-Learning" was seriously considered and thus in 2008, the two programs were merged and named "Taiwan e-Learning and Digital Archives Program (TELDAP).

Organizational Chart
Participating Institutions of TELDAP

Advisory Board

Advisory Counsellor

Steering Committee

TELDAP Program Director/ Deputy Program Director

TELDAP Program Office Director/Deputy Director

Evaluation Board

Board of Directors

Taiwan Digital Archives Expansion Project
- Content

Research and Development of Digital Archives and e-Learning Technologies Project
- Technology

Core Platforms for Digital Contents Project
- Platform

Academic and Social Promotions and Applications of Digital Archives and e-Learning Project
- Platform for Promotion, Application and Licensing

Industrial Development and Promotion of Digital Archives and e-Learning Project
- Industrial Development and Promotion

Digital Education and e-Learning Project
- Education

e-Learning for Chinese Language Project
- Language Learning

International Collaboration and Promotion of Taiwan e-Learning and Digital Archives Program
- International Collaboration

Participating organizations

- ❖ Ministry of Education
- ❖ Industrial Development Bureau of the MOEA
- ❖ Department of Industrial Technology of the MOEA
- ❖ Central Personnel Administration
- ❖ Overseas Compatriot Affairs Commission
- ❖ Council of Labor Affairs of the Executive Yuan
- ❖ Council for Cultural Affairs of the Executive Yuan
- ❖ Council for Hakka Affairs, Executive Yuan
- ❖ Council of Indigenous Peoples, Executive Yuan
- ❖ National Palace Museum
- ❖ Academia Historica
- ❖ Taiwan Historica
- ❖ National Central Library
- ❖ National Museum of Natural Sciences
- ❖ Chinese Taipei Film Archive
- ❖ National Taiwan University
- ❖ Academia Sinica
- ❖ Taiwan Provincial Consultative Council
- ❖ National Archives Administration

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Objectives of TELDAP

(1) To showcase the cultural, social and biological diversity of Taiwan;

(2) To promote the application of technologies and digital contents in cultural, academic, socio-economic and educational development;

(3) To establish digital archives and e-learning industries;

(4) To improve the use of e-learning in formal education and lifelong learning;

(5) To establish Taiwan as a global e-learning center for Chinese language; and

(6) To promote international cooperation network for Chinese cultural heritage and e-learning.

Projects carried out by Institutions

- There are twelve institutions participating in the TELDAP projects. They are Academia Sinica, National Museum of Natural Sciences, National Palace Museum, National Taiwan University, Academia Historia, Taiwan Historia, National Central Library, Chinese Taipei Film Archive, National Archives Administration, Council of Indigenous Peoples, Council of Hakka Affairs, and Taiwan Provincial Consultative Council.

- The digital archives established by these institutions included cultural treasures, rare books, historical archives, and biodiversity.

Institutional Projects

- Academia sinica
- M. of Natural Sciences
- Palace Museum
- Taiwan University
- Academia Historia
- Taiwan Historia
- Central Library
- Film Archive
- Archives Administration
- C. Indigenous Peoples
- C. Hakka Affairs
- TPCC

National Treasures
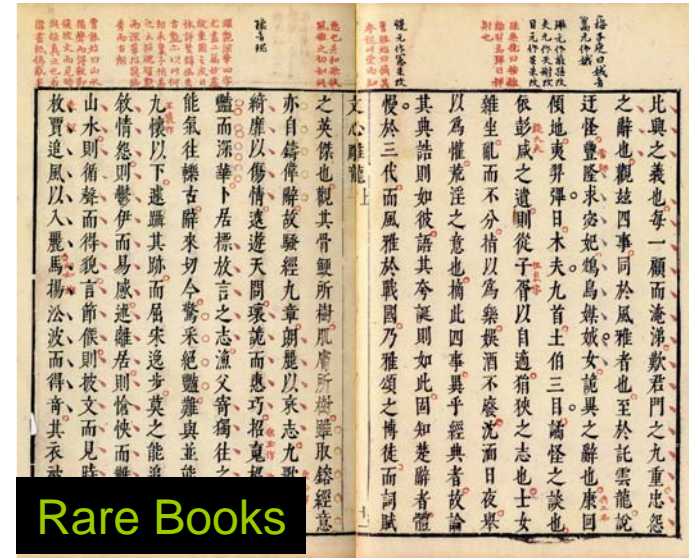
Rare Books

Biodiversity
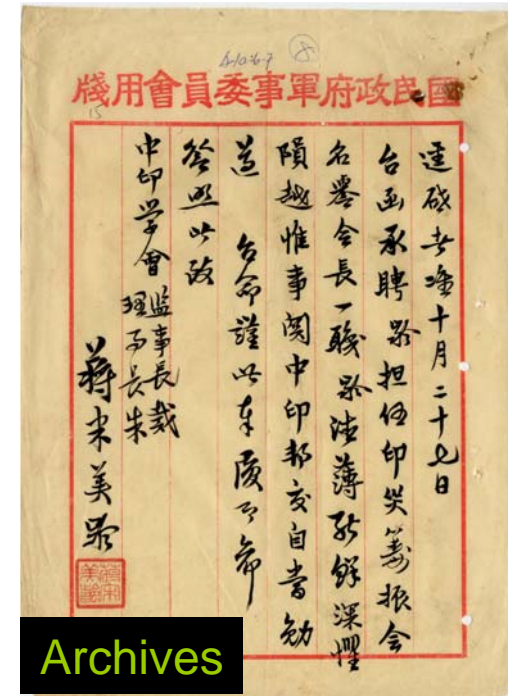
Archives

Projects carried out by proposals

- In addition to the twelve institutions, other colleges and universities, organizations, and foundations are welcome to apply for funding with proposals for digitizing their collections.

- The digital archives established through this type of proposals cover a wide variety of topics related to indigenous culture, religions, music, folk lore, drama, architecture, ethnic groups, performing arts and handicrafts.

- Moreover, a web-based platform, known as Cyber Island, is open to general public; thus, small archival institutions, individual collectors and photographers can contribute their digital contents. (http://cyberisland.ndap.org.tw/)

Projects by Proposals

- Colleges & Univ.
- Organizations
- Foundations

Indigenous culture

Religion
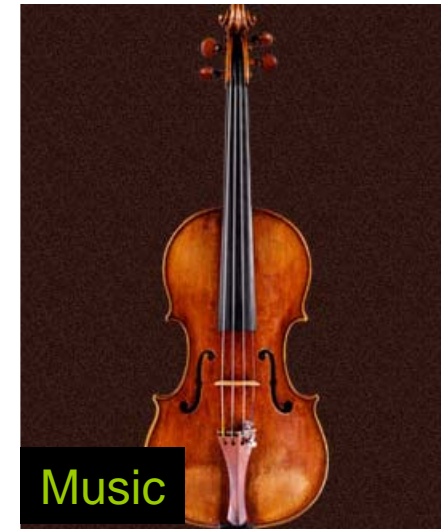
Music

Folk lore

Drama

Architecture

Ethnic groups

Performing arts

Handicrafts

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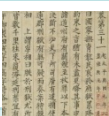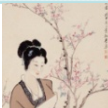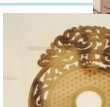
General Public: Cyber Island (http://cyberisland.ndap.org.tw/)

Cyber Island is a web-based platform that enables a wide variety of smaller archival institutions, individual collectors, photographers and the general public to contribute their digital contents.

Contents of digital archives created by TELDAP are categorized into 6 thematic groups

	Nature		Literature
	Zoology		Rare Books
	Geology		Archives
	Botany		Stone & Bronze Rubbings
	Media		Chinese Manuscripts
	Multimedia		Architecture & Maps
	Journalism		Architecture
	Language		Maps
	Heritage		Arts
	Archaeology		Painting & Calligraphy
	Anthropology		Antiquities

Digital Archives Technologies

TELDAP has brought together experts of contents and technologies to work closely together. Technology teams provide their knowhow and innovations in the following aspects:

(1) Database team offers technological support for digitization of rare-books, porcelains, paintings and calligraphies;

(2) Metadata team offers technological support for establishing standards and applications of metadata;

(3) Multimedia team offers technologies of video enhancement, audio processing and retrieval, and set up VCenter at http://vcenter.iis.sinica.edu.tw/; and

(4) Language team provides technologies for resolving the un-encoded Chinese character problems, for Han character variants processing, and for Chinese natural language understanding.

Database Technology Development Team offers technological support for digitization of the rare-books in four libraries:

- Fu Ssu-Nien Library (Academia Sinica)
- Harvard-Yenching Library
- Princeton-East Asian Library
- Library of Congress

印記圖檔

檔名	影像	影像格式	解析度	壓縮比	圖檔來源
176753a		TIF	300DPI		重廣補註黃帝內經素問二十四卷(176753):目錄頁1a

來源（必填）	☐ 1 傳圖明代詩文人名 新增 刪除						
姓名	姓：王 名：錫爵						
性別	⦿男 ○女 ○不詳						
異名	☐ 1 類別：字 名稱：元馭 出處：查詢 刪除						
	☐ 1 明人傳記資料索引 頁74						
	☐ 2 類別：號 名稱：荊石 出處：查詢 刪除						
	☐ 1 明人傳記資料索引 頁74						
	新增 刪除						
	☐ 1 生年朝代：明 廟號：世宗 年號：嘉靖 13 年 月 日西元：1534						
	卒年朝代：明 廟號：神宗 年號：萬曆 38 年 月 日西元：1610						
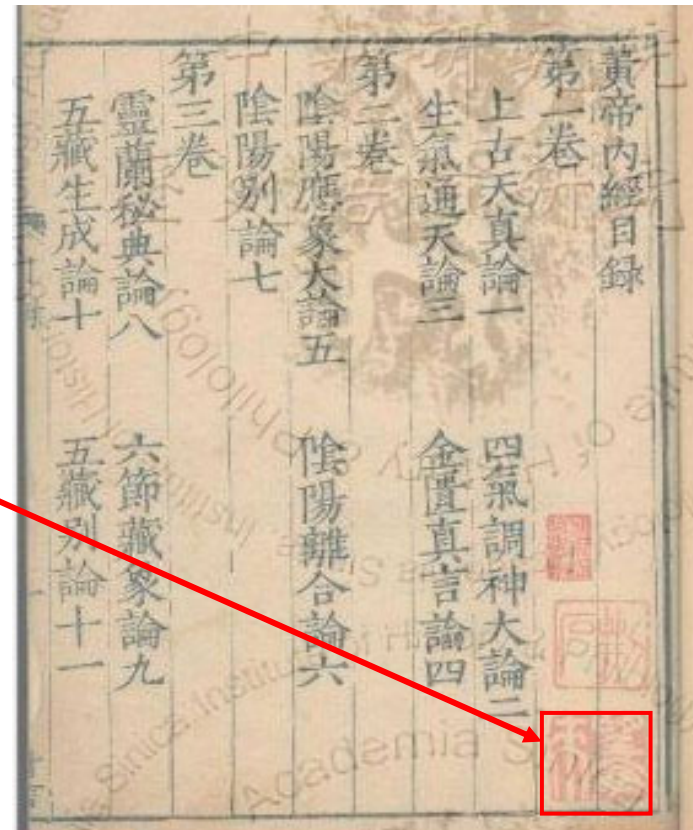
Achievements since 2002

TEDAP with its predecessors have notable achievements:

(1) 2.63 million items of national treasures have been digitized and presented in the TELDAP Union Catalog: http://catalog.digitalarchives.tw/dacs5/System/Main.jsp;

(2) 41,000 e-learning courses (120,000 hours) have been collected and can be accessed via the Learning Object Repository in Taiwan: www.lort.org.tw;

(3) Of the 379 websites still in operation, an estimation of 2.9 million visits per month was counted during July–September, 2009;

(4) The rate of internal e-learning implementation in companies with the top 1,000 production value in Taiwan increased from 14% in 2003 to 59% in 2008; and

(5) The production value of e-learning related industries raised from USD$ 20 million in 2002 to USD$ 38 million in 2008.

Access: *UNION CATALOG*

Browsing Millions of National Treasures

http://catalog.digitalarchives.tw/dacs5/System/Main.jsp

Access: **TELDAP English Portal**
Digital Taiwan - Culture & Nature

http://culture.teldap.tw/

International Collaboration:
TELDAP has identified and acquired Taiwan-related collections located overseas from 64 institutions in 13 countries

- Sweden (1)
- Russia (9)
- U.K. (2)
- Germany (2)
- Canada (1)
- France (1)
- U.S. (11)
- S. Korea (10)
- China (6)
- Japan (16)
- Vietnam (1)
- Singapore (3)
- Australia (1)

Impacts of TELDAP

- Cultural impact: Create a new way of preserving cultural and historical heritage and knowledge dissemination;

- Academic impact: Create a new environment for innovative research and development;

- Socio-economic impact: Create win-win opportunities for content holders and digital content industries; and

- Educational impact: Build a knowledge repository for life-long learning and bridge the digital gaps among geographical areas and groups of people.

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Cultural Impact

Create a new way of preserving cultural heritage and knowledge dissemination

Scholarly Community

Database

Digitization

Collections in museums

Books in libraries

Objects in archaeological sites

Access

Union Catalog

Access

User

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Cultural Impact
Create a new way of learning in the museum

- Build "mobile-Learning" network in National Palace Museum.
- Provide materials for learners and learning network.
- Host web-workshops for teachers, volunteers, and officers.

Academic Impact
Provide a new environment for innovative research and development

■**From "Humanities" to "Humanities Informatics"**

Example: The city was once in the sea---Natural and cultural changes of Taijiang Inland Sea during the past 300 years

Current coastline of Tainan

影像來源:Google Ear

Source: Fan, I-chun (2006), Enter the Time Tunnel: Integration of GIS and Spatio-temporal Information, presented in the Knowledge Feast Colloquium at Academia Sinica.

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Academic Impact

Taiwan's data accessible in global databases - OBIS (Ocean Biogeographic Information System)

Enchelycore bikiniensis	Taiwan	1992	Shao, K.T.	Keelung	25.1833	121.85	FB Enbik_u0.jpg
Enchelycore lichenosa	Taiwan	1992	Shao, K.T.	Aoti	25.05	121.9167	FB Enlic_u0.jpg
Gymnothorax kidako	Taiwan	1991	Shao, K.T.	Aoti	25.05	121.9167	FB Gykid_u1.jpg
Enneapterygius cheni	Taiwan	1994	Shao, K.T.	Cheng-Kung	25.1167	121.35	FB Enche_m0.jpg
Gymnothorax niphostigmus	Taiwan	1993	Shao, K.T.	Keelung	25.1833	121.85	FB Gynip_u0.jpg
Gymnothorax niphostigmus	Taiwan	1993	Shao, K.T.	Keelung	25.1833	121.85	FB Gynip_u1.jpg
Epinephelus trimaculatus	Taiwan	1978	Randall, J.E.	Keelung	25.1167	121.7167	FB Eptri_u0.jpg
Mugil cephalus	Taiwan	1978	Randall, J.E.	Keelung	25.1167	121.7167	FB Mucep_u5.jpg
Lutjanus rufolineatus	Taiwan	1978	Randall, J.E.	Su-ao	24.5833	121.8333	FB Luruf_u4.jpg

3

Socio-economic Impact
Integrated searching mechanism provides data accessibility and increases scale of knowledge community

By 17 August 2009, TELDAP Union Catalogue http://catalog.digitalarchives.tw/dacs5/System/Main.jsp has accumulated 2,630,808 items of metadata, 1,692,875 items of digital images, and 42,171 items of digital video and audio materials, with a total of 4,365,854 items. Part of these items are authorized for extension utilization through Creative Commons.

Fig. 1 shows the increasing trend of visitors; Fig. 2 indicates a growth of 130% by comparing the first two quarters of 2008 and 2009.
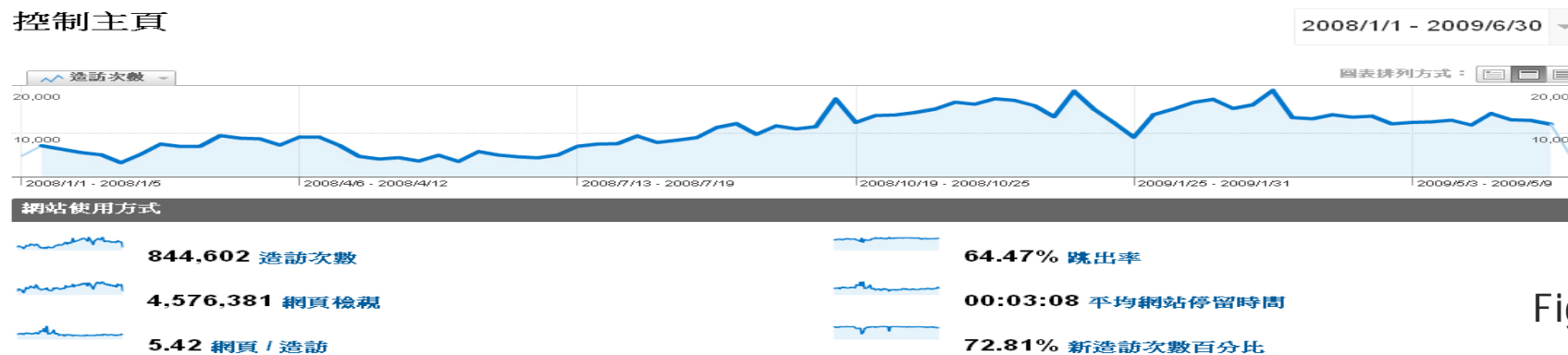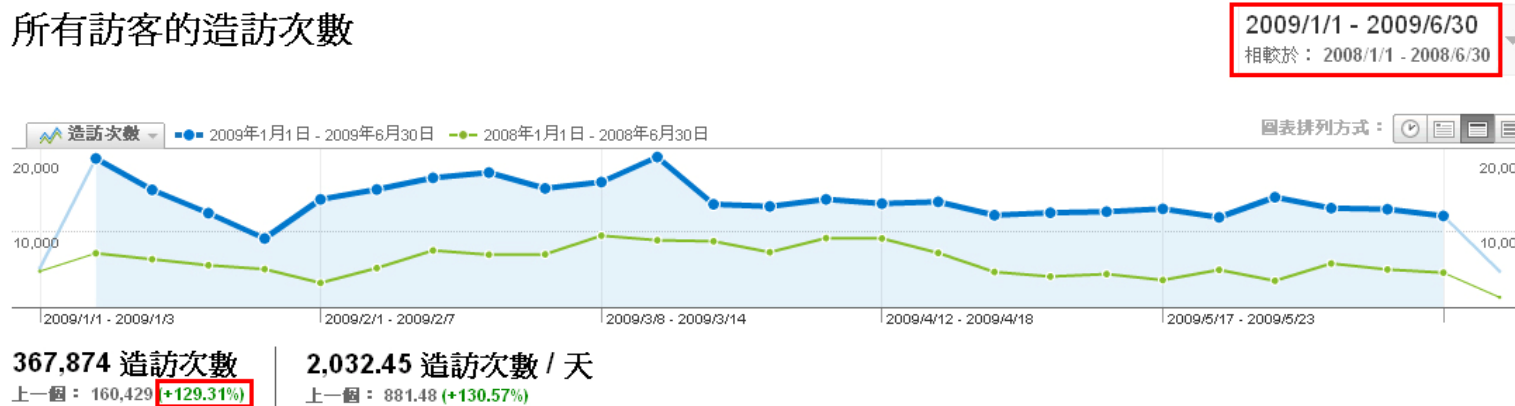

Fig. 1

Fig. 2

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Socio-economic Impact: Create win-win opportunities for content holders and digital content industries

Example: LED designed by Qisda Company applying digital images of coral was the winner of Germany iF and red dot design award in 2009.

Educational Impact: Bridge digital gaps in Taiwan

- **More than 200 training courses or workshops have been held for the general public, teachers, digital archives professionals, Taiwan Indigenous People and others to promote knowledge of digital archiving and its applications. The number of participants is over 10,000.**

Concluding Remarks

- For more than twenty years, early initiatives at Academia Sinica and recent efforts of national programs have established a huge number of digital databases in Taiwan.

- In this digital era, these databases have preserved national treasure, cultural and historical heritage, as well as biodiversity of Taiwan. They not only create new ways and environments for research and teaching but also provide new opportunities for life-long learning among the general public.

- These achievements witness a mutual collaboration between content and technology experts. And I believe this spirit is also indispensable for keeping the sustainability of digital archives in the future.

Thank you for your attention!