A Duet between Culture Heritage and Digital Technology in Taiwan

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AAM Museaward Jury Chair

Presentation Outline

• Museum Brief Overview
  – History & Collection
• National Projects Introducing Innovative Technologies
• A Quick Look-back
  – What Has been Done
• Latest Update
  – Focus on Interactivity
• Showcase
  – The Multimedia Gallery of Paintings & Calligraphy
• Museum Technology Foresight: Horizon Report Museum Ed.
• Conclusion, Prospect, and Lesson Learned
Presentation Outline

- **Museum Brief Overview**
  - History & Collection
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- Conclusion, Prospect, and Lesson Learned

Museum Brief Overview

Museum History

- First established in **1925** in the Forbidden City, Beijing, China.
- Started evacuating its collections to the south and southwest during the Sino-Japanese War in 1922.
- 22% of its large collection of cultural artifacts was eventually relocated to Taipei, Taiwan.
- Re-opened in *Waishuangxi, Taipei*, merged with the Central Museum (founded in 1933 at Nanking) and renamed the National Palace Museum.
The Museum Today

Museum Brief Overview

Collections

- Mainly deals with arts and artifacts of ancient Chinese fine arts, including paintings, calligraphic works, antiquities, rare books and imperial Ch‘ing Court Archives.
- 682,061 objects (Dec, 2010)
文物總量請參見：全球資訊網 → 認識故宮 → 文物與帳房
http://www.npm.gov.tw/zh-tw/about/objects.htm

以下是館藏數量表，不包括書籍部分，採用以下分類：陶瓷、玉器、銅器、漆器、竹編、竹器、文具、印拓、鏡像、描繪、書籍、印章、銅鐘、書信、書畫等之文獻，清宮御藏之文獻，以及御用法器、禮器、典禮用具之清單等數量。累計至今總量數為：

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<tr>
<th>品類</th>
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<td>絹類</td>
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<td>玉器</td>
<td>12,17件</td>
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<td>72件</td>
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<td>陶器</td>
<td>2,520件</td>
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<td>銅器</td>
<td>4,669件</td>
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<td>2,79件</td>
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<td>903件</td>
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<tr>
<td>銅器</td>
<td>1,483件</td>
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</tbody>
</table>

以上編列603,560件文物，資訊於090年（2011）12月前完成的編目清點。
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- Latest Update
  - Focus on Interactivity

- Showcase
  - The Multimedia Gallery of Paintings & Calligraphy

- Conclusion, Prospect, and Lesson Learned

Creation of Knowledge Assets through Digitization Projects

- Facing the trend of the ever changing role of museums
  - Collecting, conservation, education, entertainment, merchandizing...

- Since 2001, the NPM has launched a series of IT related projects which aim to:
  - Digitize the whole collection.
  - Transform digital raw material into knowledge assets.
  - Expand the results of digitization projects into diverse museum functions: registration, conservation, research, exhibition, education, publication, merchandizing.

- Some of these projects are still running.
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The Digital Archives Project

Main tasks

- Digitizing Artifacts
- Retaining and Managing
  - Constructing databases of digital images and metadata
- Providing materials for value-added applications and research
數位典藏：文物 3D 數位象牙球之 3D 雷射掃瞄

故宮文物典藏系統
器物處、書畫處、圖書文獻處之 Metadata 系統，已開放查詢

故宮器物典藏資料檢索 故宮書畫典藏資料系統

清代宮中檔奏摺與軍機處檔摺件資料庫 故宮善本古籍資料庫
數位典藏成果產出(一)
器物典藏資料檢索系統-1

• 系統首頁：

• 檢索功能：提供關鍵字查詢、品名、時代、類別、功能、典藏號(文物統一編號)等查詢功能。

數位典藏成果產出(一)
器物典藏資料檢索系統-2

• 檢索結果列表：顯示品名、尺寸、類別及文物圖例。
數位典藏成果產出(一)
器物典藏資料檢索系統-3

- 文物基本資料頁面：提供品名、典藏號(文物統一編號)、質材、功能、尺寸、時代、說明及文物數位攝影檔。並提供圖片局部放大功能

數位典藏成果產出(二)
書畫典藏資料檢索系統-1


- 檢索功能：提供一般检索與進階检索。一般检索可用書畫名稱或文物編號查詢，進階检索則可加入精確、模糊及AND或OR條件。
Database of Painting and Calligraphy

- 檢索列表頁面：顯示文物統一編號、書畫品名、作者、集叢名稱及圖例

The Collection Management System
(Internal Use Only)

- 文物基本資料頁面：提供瀏覽文物資料及相關影像檔，並有高解析度圖檔瀏覽功能，提供研究人員可以更詳細觀賞文物細部圖像。
數位典藏成果產出(二)
圖書文獻處資料庫

- 圖書文獻處資料庫
  - 清代宮中檔奏摺及軍機處檔摺件目錄索引
  - 清代宮中檔奏摺及軍機處檔摺件全文影像資料庫(付費使用)
  - 清代文獻檔冊目錄資料庫
  - 大清國史人物列傳及史記傳包傳稿目錄索引
  - 大清國史人物列傳及史記傳包傳稿全文影像資料庫
  - 善本古籍目錄索引
  - 善本古籍全文影像資料庫
  - 家族譜牒文獻資料庫
  - 故宮博物院藏佛經附圖索引
  - 海外遺珠─非院藏文物圖片查詢
  - 清代檔案人名權威資料查詢
  - 同人輯清史書目
  - 清宮奏摺檔台灣史料檔
  - 一史館藏清代滿漢文硃批奏摺彙編目錄索引
  - 一史館藏活計檔作名索引
13 Digital Archives Databases Constructed

- Antiquities Database (器物典藏資料検索)
- Paintings and Calligraphy System (書畫典藏資料系統)
- Rare Books Database (基本古籍資料庫)
- Database of Ch’ing Palace Memorials and Archives of the Grand Council (清代宮中檔奏摺及軍機處檔摺件資料庫)
- Ch’ing Dynasty Biographies and Academia Historical Biographical Packs and Drafts Index Search Database (清代史館檔傳包傳稿目録索引資料庫)
- The Ming-Ch’ing Biographical database (清代檔案人名譜資料查詢)
- Database of Genealogical Document (家族譜牒文獻資料庫)
- Index to Ch’ing Archival Volumes (清代文獻檔冊目錄資料庫)
- Bronze Patterns of Early Qin Dynasty Search System (先秦銅器紋飾資料檢索系統)
- Index of Qing Palace Memorials Regarding Taiwanese Historical Documents (清宮奏摺檔臺灣史料目録)
- Index of Files in China First Historical Archives (一史館藏活計档作名索引)
- Editorial Contents of Tsou-Che with Emperors’ Comments in both Manchu and Chinese Collected at China First Historical Archives (一史館藏清代滿漢文硃批奏摺彙編目録)
- Fellow Curators’ Collections on Historical Books in Qing Dynasty (同人輯清史書目)

數位典藏成果產出(三)
清代宮中檔奏摺及軍機處檔摺件資料庫-3

- 全文影像檔 (需付費使用)
數位典藏成果產出(三)
善本古籍資料庫-1


書影（免費瀏覽）

2009/10/14
本院對外公開文物典藏資料庫比例(2009)

公開資料

內部資料

器物典藏系統

書畫典藏系統

The Antiques Database

The Paintings and Calligraphy System

The Collection Management System

Accessability of Databases to General Public
(March, 2011)

Public access

Internal database

The Antiques Database

The Paintings and Calligraphy System

The Collection Management System
數位典藏成果產出（五）
故宮藏品管理系統（供院內使用）

- 為使本系統功能更加完備，於2008進行系統功能擴建，預計2009年底測試完畢正式上線使用。

數位典藏成果產出（五）
故宮藏品管理系統（供院內使用）

- 文物基本資料頁面：提供瀏覽文物資料及相關影像檔，並有高解析度圖檔瀏覽功能，提供研究人員可以更詳細觀賞文物細部圖像。
數位典藏成果產出（五）
故宮藏品管理系統（供院內使用）
文物修護記錄系統
(已整合至故宮藏品管理系統，供院內使用)

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文物修護記錄系統
(已整合至故宮藏品管理系統，供院內使用)
Collection Management System

(For Intranet only)
Choosing the Picture:
Taking “One Hundred Horses” for Instance
Images from Separate Parts of “One Hundred Horses”

- JPG(1000*796 72dpi , about 256kb)
- Click to enlarge Images

iseemedia Flash Viewer
The Operating Process

The Digital Museum Project

Background

With the help of state-of-the-art multimedia and information technologies, the NPM can present the digital collection in a lively thematic way to the public.
The Digital Museum Project

Main tasks
Present the beauty of collections in various ways:

1. WEB
2. E-Newsletter
3. CD/DVD
4. Films/ Movies/ Drama/ 3D animation
5. Interactive Kiosk & VR

The Museum Website

• Concept of Web Design
  • User Oriented
  • Moduralized
    • Quality
    • Efficiency
    • Security
    • Cost
NPM Global Website (9 Languages)
http://www.npm.gov.tw
http://www.npm.edu.tw
http://npm.museum
http://taiwan.national.palace.museum

NPM Virtual Museum
http://www.npm.gov.tw/vrmuseum/
Demonstrated in Chinese version at present time

NPM e-Learning Courses
http://elearning.npm.gov.tw/index.htm

NPM Themed Websites
故宮全球資訊網：展場虛擬實境導覽

・建置展場虛擬實境導覽系統，提供策展人簡介、策展理念、策展甘苦談及展場介紹等深入導覽資源。

NPM e-newsletters
http://enews.npm.edu.tw/

Films & Documentary
1. Behind the Palace, Beyond the Horizon
2. Drama: The Passage
3. In the Golden Age of Chinese Craftsmanship
4. Image Advertizement
5. 3D Animation: Adventure in the NPM
6. INSIDE: the Emperor’s Treasure
7. A Museum without Walls
《經過》

「時間只是經過，剛好留在這裡」。《經過》，以故宮為場景，在這些場景裡，導演鄭文堂用蘇軾的《寒食帖》串起了關於時間、記憶、一些流離與情感的故事，戴立忍、桂綸鎂與日本演員陰山征彥，他們在這裡找尋一些遺落很久的東西……。

《盛世裏的工匠技藝》

「技藝，是人在宇宙中為自己找到的位置」- 法國人類學家李維‧史陀。人類文明進程的本質是手工，雖然有水利、風力、輪軸與槓桿，但那是為了手工的效率。整個西方工業文明的興起到現在不到五百年，比起悠久的手工文明，我們的記憶還是手工的。因為造型的原理、美感的確立、質感的分別，都是在手工時代逐漸確立和完善的。文明的最高統治者—皇帝。擁有享用最高手工工藝品的權利，他的住、衣、食、行是最宏偉、最精緻的手工製作。所以整個故宮的物品，是手工藝之集大成。
形象廣告
導入行銷之概念，透過電影美學及現代視聽科技的鋪陳，重新塑造故宮形像。
毛公鼎：到故宮找流行影片  
Mao-Kung Ting: Fashion in NPM

象牙球：到故宮找想像力影片  
Ivory Ball: Imagination in NPM

翠玉白菜：到故宮找新鮮  
Jadeite Cabbage: Freshness in NPM

橄欖核小舟：到故宮找驚喜  
Carved Olive-stone Boat: Surprise in NPM

到故宮找美夢  
Revolving Vase: Dreaming in NPM (Please click here)

1 轉心瓶  
The revolving vase
2 當貓遇上轉心瓶  
When the cat met the vase
3 貓睡著了  
The cat fell asleep
4 貓的美夢  
The cat had a wonderful dream
Short Films

INSIDE:
The Emperor’s Treasure
National Geographic Channel
The Museum Without Walls
Documentary Film of NPM Digital Archive Program

The 3D Animation Orientation Film
Adventure in the NPM
（國寶總動員）
國寶總動員

- 由國立故宮博物院結合研究人員、教育推廣人員以及高科技數位業界所共同製作的3D動畫影片。
- 以故宮收藏的宋代定窯嬰兒枕、玉鴨以及漢代玉辟邪三件精采的藝術品為原型，創發出頑皮、詼諧及智慧的三位主角人物。
- 引領觀眾對故宮藏品的認識，同時體驗本院曾經歷的文物遷運歷史。
得獎訊息 (續)
「國寶總動員」3D動畫影片

- 2007年國際博物館與文化資產多媒體展示及競賽會議 （Fi@MP）：影視類 - 震撼獎

- 東京動畫影展：公開徵選作品類 - 首獎

The 3D Animation Orientation Film

Adventure in the NPM
（國寶總動員）
The Digital Learning Project

Background

Begun in 2003, this project proposes to present its rich collection in an online teaching format suitable for local and overseas viewers.

Main tasks:

- Building a “The Digital Learning Demonstration Center”
- Setting up a “Wireless Tour System”
- Establishing museum e-learning network
RFID-based Guide

Visitors are able to acquire the information of the selected artifact immediately via sensor-detecting.
故宮e學園  http://elearning.npm.gov.tw
數位課程線上學習

「故宮e學園」數位課程

- 2003：青銅器中英文版系列課程
- 2004：陶瓷中英文版系列課程
- 2005：中國繪畫中英文版系列課程
- 2005：文物的續命中英文版系列課程
- 2006：法書及圖書文獻中英文版系列課程
- 2006：文物的修護中英文版系列課程
- 2007：中國玉器中英日文版系列課程
- 2007：文物的新認識中英文版系列課程
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Interactive Kiosks

• Purposes
  • To invite conversations between museum contents and visitors
• Types
  • Context-aware System
  • Interactive Tabletop System
  • Virtual Display System
  • Virtual Panel System
Context-aware System
A Tang Palace Rhapsody

Interactive Tabletop System
Must-see Interactive Tabletop for Paintings & Calligraphy
Interactive virtual display:  
Magic Crystal Ball
Virtual Panel System

Jumping over the Dragon Gate

Important Events

2008
NPM – Future Museum in the International Airport
- 2008-2009 Passé-Future Special Exhibition
- 2010 NPM LOHAS Special Exhibition
- 2011 3D NPM Special Exhibition

2009
- The Yongzheng Emperor and His Times Special Exhibition

2010
Hua-shan Creative Park
- NPM Digital Special Exhibition
- NPM Animation Special Exhibition
- Four Seasons in NPM Special Exhibition

Traveling Exhibitions
- National Treasures of NPM in Chia-yi, Beijing

2011
AAM Annual Conference & Museum Expo
Launched in the First Exhibition Building of NPM
- Beyond Landscape-Meeting Huang Gong-wang and New Deduction of the Landscape
- 210 Multimedia Gallery of Paintings & Calligraphy
NPM - Future Museum

Taiwan Taoyuan International Airport, Terminal 2

2008-2009 Passé-Future

Contemporary Interpretation of an Old Masterpiece

The Taste of Daily Life
2010 NPM LOHAS

Magic Crystal Ball  Turning Rust into Gold  Inside

2011 3D NPM

3D Chinese Paintings
雍正・清世宗文物大展

2009 The Yongzheng Emperor and His Times

On-site Kiosks of Yongzheng Emperor
結合受歡迎「公仔」元素設計雍正展教育互動媒體
以公仔作為觸發裝置，觸發各場域內相對之展件介紹

地: 雍正宮廷生活 (互動流程)

(可播放M) (可播放N)
以年表模型作為觸發裝置，觸發雍正年間之重要事蹟。

事：雍正年表（互動流程）
Hua-Shan Creative Park • NPM Digital

Must-see Interactive Tabletop  Opening Ceremony in 2010

Taste of Daily Life
Traveling Exhibitions
National Treasures of NPM in Chia-yi

Mao-kung Ding Interactive Tabletop of Chinese Characters

Traveling Exhibitions
2011 AAM Museum Expo

A Tang Palace Rhapsody
Beyond Landscape
Meeting Huang Gong-wang and New Deduction of the Landscape

- A joint exhibition of the special exhibition: Landscape Reunited-Huang Gongwang and Dwelling in the Fuchun Mountains

Painted and completed by Huang Gongwang (1269-1354), one of the Four Yuan Masters, when he was 82 years old.

Passed down through the generations, in 1650 owned by Wu Hongyu who consigned this painting to the flames on his deathbed.

Suffered damage and separated into two sections, "The Remaining Mountain," 51.4 centimeters long and now an important work in the Zhejiang Provincial Museum. The latter part, composed of six joined pieces of paper, 636.9 centimeters long, entered the Qing imperial collection in 1746 and ranks as a national treasure of the National Palace Museum.

For more than 360 years, these two sections of the original scroll have never been displayed together.

Landscape Reunited
Huang Gongwang and Dwelling in the Fuchun Mountains

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The Landscape Transformed (山水化境)

A Legend in Art History (畫史傳奇)
Listen to the Painting (聽畫)

Secrets to Depicting Landscapes (寫山水訣)
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• Showcase an On-site Application
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• Conclusion, Prospect, and Lesson Learned
Multimedia Gallery of Paintings & Calligraphy

**Purposes**
- To make up the gaps of low lighting and high rotation of paintings and calligraphic works
- To provide brighter, more holistic, and in-depth views to ancient Chinese painting and calligraphic works
- To help audience to interact with the artifacts and to explore those ingenious details

**Six Learning Areas**
- The Orientation Film
- The E-museum Digital Database
- The Interactive Tables
- The Themed Exhibition
- The 3D Multimedia
- The Paintings and Calligraphy Theater
• **The Orientation Film** guides our audience through the prized paintings and calligraphy collection. This area aims to promote the collective creative spirits between calligraphy and paintings.

• **The E-museum Digital Database** collects and exhibits the sites and CDs of the paintings developed by the NPM. With various thematic databases and sites, this area provides powerful tools for the audience to select, listen, and watch to create a diverse learning environment.
• **The Must-see Interactive Table** allows the audience to touch the screen to zoom in or out with fingers, allowing detailed inspection. You can also read the guide of the paintings or translation of the calligraphy to experience the joy of E-learning.
The Themed Exhibition presents the paintings in a different view with multimedia systems in forms of hand-scroll, hanging scroll, and album leaves. With different framing styles, it takes the audience on a journey to travel through the mountains and rivers, to discover the wonders in quiet valleys, and to visit the city streets to experience the world created by the artists.
• The 3D Multimedia utilizes the latest 3D experience imaging technology to present a full 3D experience. It puts you amid the concert with Tang Dynasty ladies for tea appreciation, music performance, and playing various literati wine appreciation activities.

• The Paintings and Calligraphy Theater plays films related to the theme of exhibition to enhance the atmosphere of group learning. With selected films on paintings and calligraphy, it not only creates an atmosphere for group learning, but also brings the paintings and calligraphy appreciation to a new level.
• With the technical support and donation of equipments from Delta Electronics, we are able to promote energy saving while displaying the beauty of our national treasures.
Hua-Shan Creative Park • NPM Digital

Must-see Interactive Tabletop  Opening Ceremony in 2010
四季故宫
Presentation Outline

- Museum Brief Overview
  - History & Collection
- National Projects Introducing Innovative Technologies
- A Quick Look-back
  - What Has been Done
- Latest Update
  - Focus on Interactivity
- Showcase
  - The Multimedia Gallery of Paintings & Calligraphy
- Museum Technology Foresight: Horizon Report Museum Ed.
- Conclusion, Prospect, and Lesson Learned

2011 Horizon Report
Museum Edition
Acknowledgements

The research behind the 2011 Horizon Report: Museum Edition is a collaboration between the New Media Consortium, the Marcus Institute for Digital Education in the Arts (MIDEA), a program of the NMC.

The Horizon Report > 2011 Museum Edition is a publication of the New Media Consortium.
Higher Education  
K12 Education  
Museums  
Australia/New Zealand  
Ibero-America  
Singapore/China/Japan/Korea  
UK/Central Europe  
Africa  
A Global Audience  

museum.wiki.nmc.org


Welcome to the workspace for the New Media Consortium’s Horizon Museum Project. This space is a place for the members of the museum_museum Advisory Board to manage the process of selecting the topics for the NMC Horizon Report: 2011 Museum Edition. The annual report is produced by The New Media Consortium®. The report focuses on emerging technologies and their applications in museum education and interpretation. This year will be the second year of publication for the Museum Edition.

Horizon m_museum is a project that applies the process developed for the New Media Consortium’s Horizon Project® with a focus on emerging technologies for museums. Members of the Museum community involved in education and interpretation are encouraged to follow the Advisory Board’s progress as the discussion unfolds and to use the wiki as a resource and reference tool.

What’s New?


• The first round of voting is completed here are the tallies: RG tallies 2011 Horizon.museum.pdf

• If you need a tour of the wiki, see the screencast in the Getting Started area.

Project Timeline

Review the timeline:

Introduction to the Horizon Project Wiki

This wiki is our primary work area, where you will find links to the discussions and activities in which we are actively engaged. You will see the chart above change as we move through the various processes involved in sorting through the technologies and, as we will deal with as we make our way to the final list that we’ll feature in the Horizon Report: Museum Edition.
Final Topics

2010

ONE YEAR OR LESS:
• Mobiles
• Social Media

TWO TO THREE YEARS:
• Augmented Reality
• Location Based Services

FOUR TO FIVE YEARS:
• Gesture Based Computing
• The Semantic Web

2011

ONE YEAR OR LESS:
• Mobile Apps
• Tablets

TWO TO THREE YEARS:
• Augmented Reality
• Electronic Publishing

FOUR TO FIVE YEARS:
• Digital Preservation
• Smart Objects
ONE YEAR OR LESS:

Mobile Apps

ONE YEAR OR LESS:

Tablets
TWO TO THREE YEARS:

Augmented Reality
TWO TO THREE YEARS:

Electronic Publishing
Digital Preservation

FOUR TO FIVE YEARS:

Smart Objects


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FOUR TO FIVE YEARS:

Smart Objects

Next Steps

museum.wiki.nmc.org
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<td>行動裝置 Mobiles</td>
<td>行動運算 Mobile Computing</td>
<td>行動運算 Mobiles.</td>
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<td>二至三年內將導入 Time-to-Adoption: Two to Three Years</td>
<td>地理資訊 Geo-Everything</td>
<td>電子書 Electronic Books</td>
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Download the 2011 Report
http://go.nmc.org/2011-horizon-museum

Sign up for 2012 Advisory Board

Jump In!

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• Showcase
  – The Multimedia Gallery of Paintings & Calligraphy
• Conclusion, Prospect, and Lesson Learned

Conclusion, Lesson Learned, and Prospect

• Conclusion & Lesson Learned
  • Role of museums is changing
  • Trend of using technology is inevitable
  • In doing so, we need cross-departmental, cross-institutional collaboration
  • Using technology is not just a technical issue, it must combines art, technology, imagination, and creativity

• Prospects
  • Mobile Computing
    – New service model
  • E-publishing
  • Cloud Computing
    – Storage (images, video,...)
    – Service (art aggregation, educational media, ..)
    – Application (virtual tour with hi quality)
THANK YOU for Listening

Come Visit Us at Taipei!

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