

Theory & Praxis of Heritage Science

What do we learn when we CAN digitize EVERYTHING ?

Prof Harold Thwaites, Director

Centre for Creative Content & Digital Innovation
(3cdi.um.edu.my)



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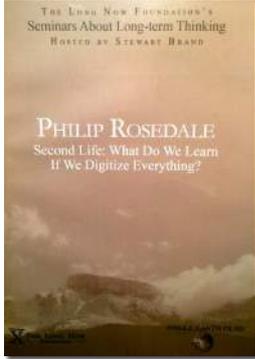
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“The future is already here – it’s just unevenly distributed.”

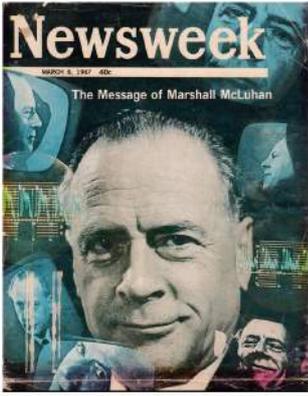
William Gibson



?



Inspiration for this talk.... 2006 DVD by Rosedale.

“Any new technology is an evolutionary and biological mutation opening doors of perception and new spheres of action to mankind”.

Focus Areas



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> www.facebook.com/cccdium <



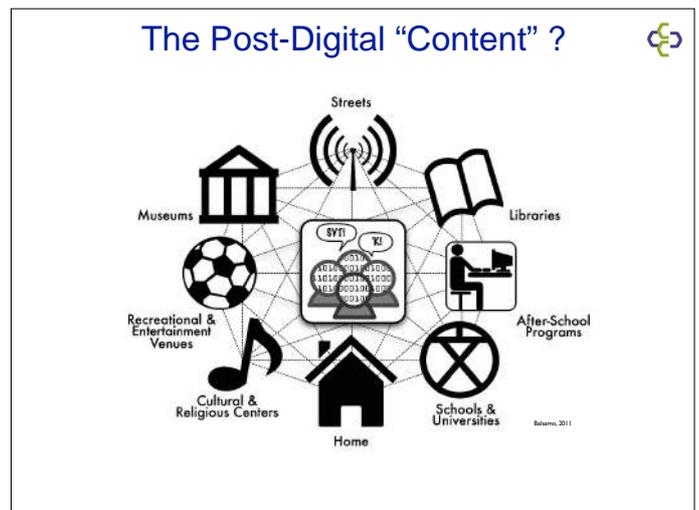
The Post-Digital Era

Focused on effects / impact of digital technology
 Concerned with being human, more than with being digital
 Humanization of digital technologies through interplay between digital, biological, cultural, and spiritual systems
 Nicholas Negroponte: "The digital revolution is over"
 Ability to C.O.P.E. > **{Create Once Publish/Present Everywhere}**

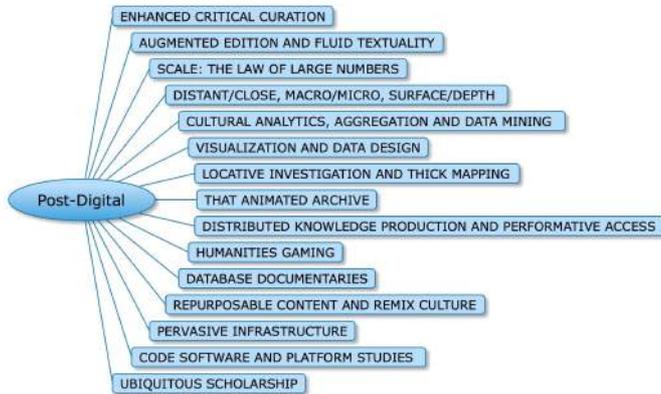
1. Ascott, R., Girao, L. M. (eds), Presence in the Mindfield: art, identity, and the technology of transformation. Aveiro, Portugal: Universidade de Aveiro, 2011.
 2. Ascott, R. T. (ed), Embrace: Visceral Theories of Art, Technology, and Consciousness. Berkeley: University of California Press, 2007.
 3. Negroponte, Nicholas. Being Digital. New York: Knopf, 1999.
 4. Manovich, Lev. The Language of New Media. Cambridge, Mass.: The MIT Press, 2001.
 5. Alizerberg, Mei. The Future of Art in a Postdigital Age. Bristol and Chicago: Intellect Books/University of Chicago Press, 2011.
 6. Thwaites, Harriet. 2013. Digital Heritage: What Happens When We Digitise Everything? In: Chung, E., Gabbay, N., and Chapman, K. (Eds.), Visual Heritage in the Digital Age. Springer: Cultural Computing Series.

The Post-Digital Audience

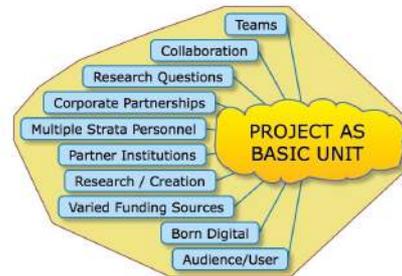
I want to be entertained
 I want it now
 I want it everywhere
 I want it my way
 I want to share it with others
 I want to create something



Leads to New Forms of Inquiry



Project Based



Heritage is used to describe a “legacy”, a set of traditions, values or treasured material things. A culture or landscape of value that are cared for by the community and passed on into the future to serve the people’s need for sense of identity and belonging.

Tangible Immovable resources (buildings, rivers, natural areas);

Tangible Movable resources (objects in museum, documents in archives);

Intangible (such as values, customs, ceremonies, lifestyles, including experiences such as festivals, arts cultural events).



The **UNESCO World Heritage** list includes 1007 properties forming part of the cultural and natural heritage which the World Heritage Committee considers as having outstanding universal value. (2015)

These include **779** cultural, **197** natural and **31** mixed properties in 161 States Parties. **46** Properties are now listed as **in Danger**.



Timeline, Michael Crichton, 1999

“At the end of the 20th Century, the artifice of entertainment, constant, ceaseless entertainment, has driven people to seek **authenticity**. Authenticity will become the buzzword of the 21st century. How do we define authentic? It that which is not devised and structured to make a profit. It is anything that exists for its own sake, and that assumes its own shape. What is the most authentic of all? **The past**.”

..... The purpose of history is to **explain** the present, to tell us why the world around us is the way it is. History tells us what is **important** in our world and how it came to be. It tells us why things we **value** are the things we should value and what is to be ignored or discarded.”

A Matter of Audience Engagement

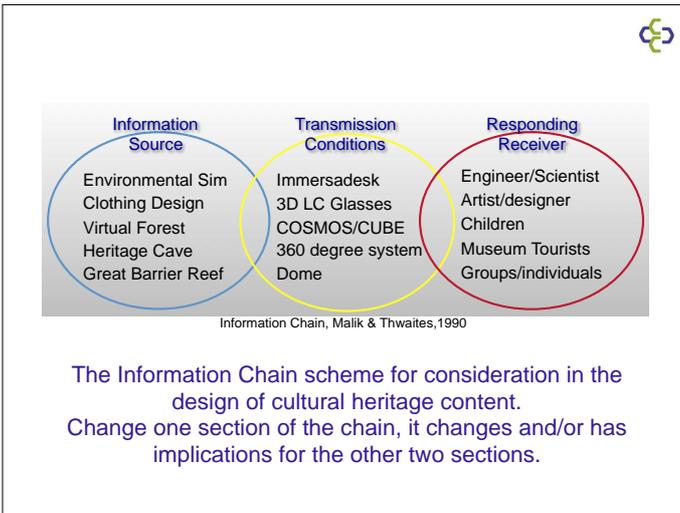


“Anyone who thinks education and entertainment are different doesn’t know much about either”. M. McLuhan, 1967

The degree to which HS will succeed depends on:

- the raw source data, images, captures, sounds that are used to create/describe/present the “content”,
- the manner/modes in which the heritage is represented in the human-computer interface,
- and the extent to which the overall experience is dynamically meaningful to users.

In our media saturated world HS must become a totally unique experience for the human mind.

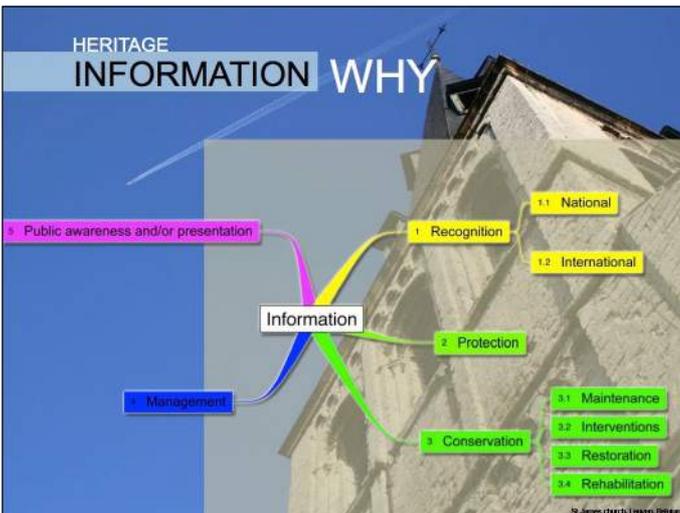
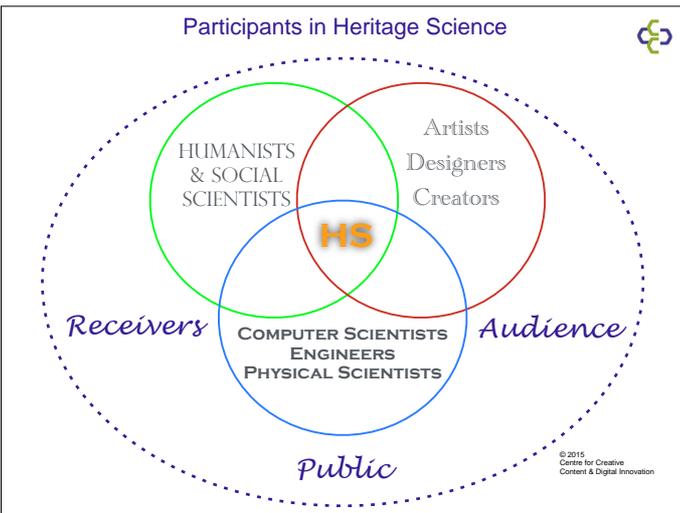
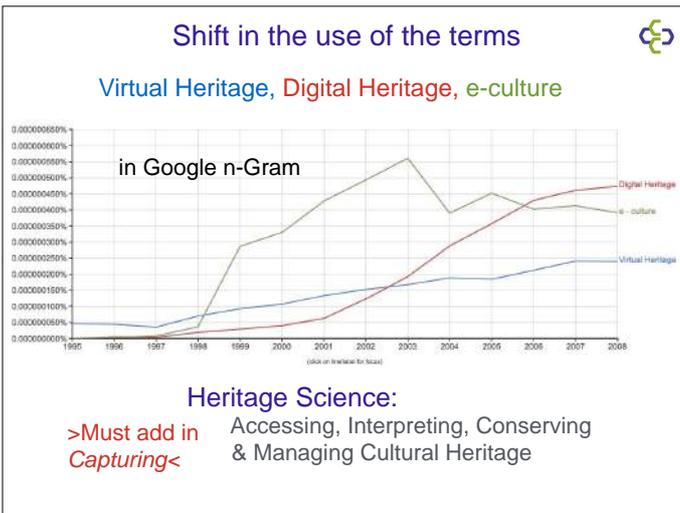


Origin of VH

"Virtual Heritage (VH) is the utilization of technology for interpretation, conservation and preservation of Natural, Cultural and World Heritage."

Stone, Robert. *Virtual Heritage*. © VSM 1999

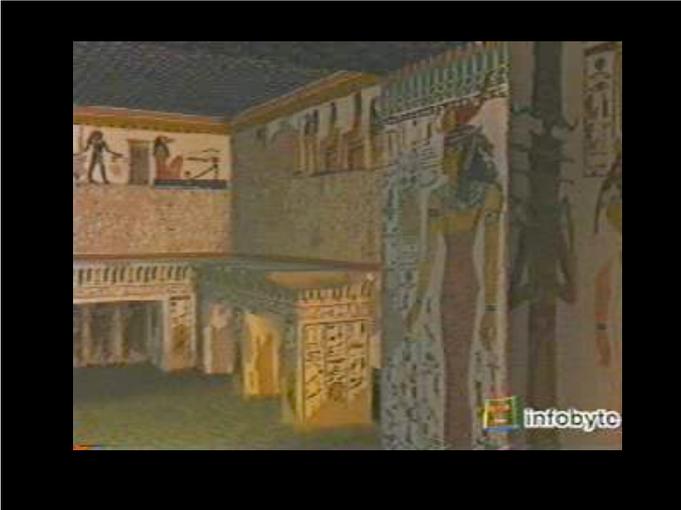
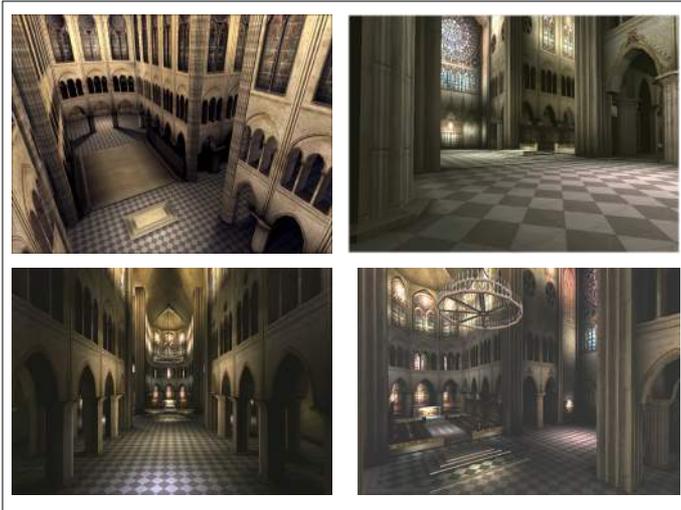
Also became known as:
Digital Heritage, Digital Culture, e-Culture, e-Heritage, e-History



born digital (adjective)

digital information originally created in electronic form

- Original content, entirely digitally **no analog** equivalent;
- Easily **replicated**, altered, and **destroyed**, networked or distributed storage,
- Can be internet-based, subject to **instability** (lost information is lost forever).
- Subject to **technical obsolescence** and physical decay.
- Content of lasting value, **dependent** on storage media and format upgrades.



Important Considerations



Technological Literacies of the Future

Design of Cultural Experiences

Modes of Public Engagement

Creation of Multiple Publics

Mobilization of Communities of **Interest** to become Communities of **Participation**

Designing Culture, Balsamo, 2011

"**Transformative** research is designed to explore new possibilities and new social arrangements."

"One of the major impacts of transformative research in the digital humanities is a reconfigured understanding of the nature and structure of multidisciplinary collaboration in the university."

"Another key contribution of the transformative research.... is the development of new forms of publication, dissemination and outreach."

"It has also served as the occasion for developing new ways of communicating the meaningfulness of the research to broader audiences, using fresh expressive modalities."

Balsamo: From "designing culture" 2011

Design :: Praxis :: Infrastructures in CULTURAL REPRODUCTION



Balsamo, Designing Culture 2011

How the future becomes the present

The relationship between culture and technological innovation

The role of interactive media

Museums and technological literacies

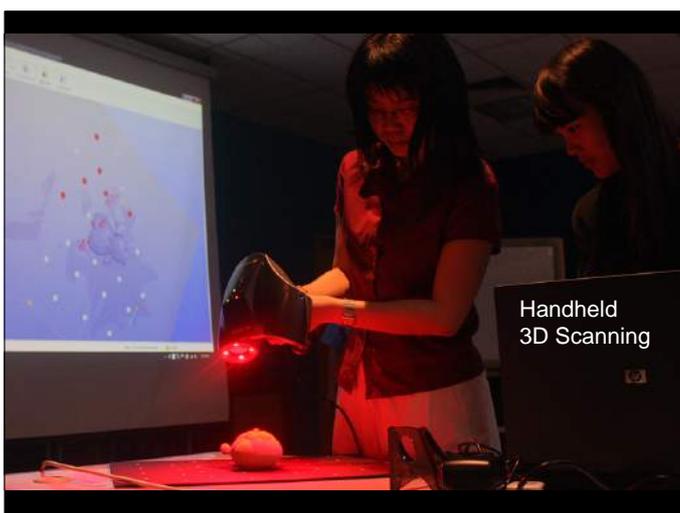
University curriculum & pedagogy

Public Interactives



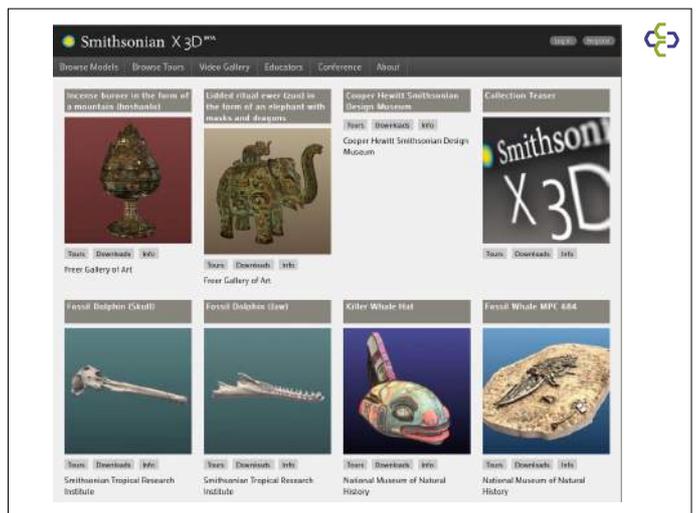
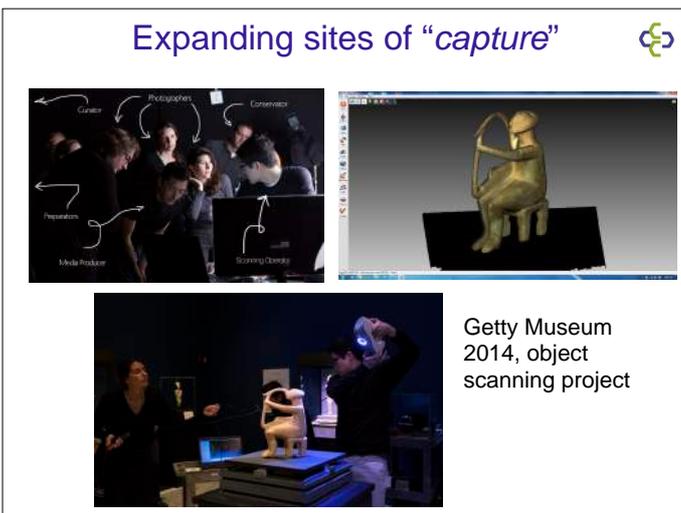
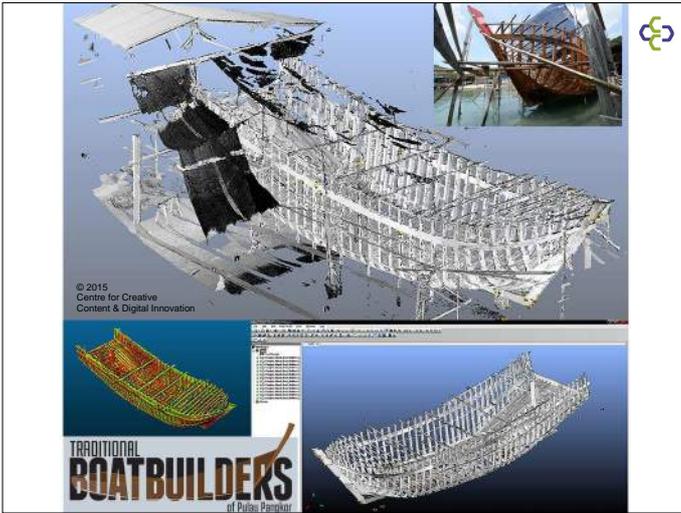
From "designing culture" Balsamo, 2011

PUBLIC INTERACTIVES are an emergent form of **public communication** designed to engage people in conversations with digital media for the purposes of information exchange, education, entertainment, and cultural storytelling.



CCCDI, Pangkor Boatbuilders Project





New forms of *public interactives*



A 500 million complex near the Chouzeau will include a newly developed site replica of the most remarkable ponds in the original, along with a multimedia center and an exposition hall.



Using virtual tools and virtual reality, visitors can explore the site of the original cave.



The charcoal in the Horse Panel in the Cave of Chauvet-Pont-d'Arc, in the Ardèche region of southern France, has been dated to 30,000 B.C.



An interactive feature, where visitors can touch points on their reproduction of the Great Fossil in the Chauvet.

Personal modes of "capture"



AUTODESK 123D APPS 3D MODELS 3D PRINTING TOOLS BLOG GO PREMIUM JOIN US SIGN IN

123D Catch is a free app that lets you create 3D scans of virtually any object.



- Android** NEW
 - Capture objects in 3D
 - Show your creations
 - Get it on Google Play
- iPhone & iPad**
 - Capture objects in 3D
 - Share your creations
 - Available on the App Store
- PC Download**
 - Limited photos
 - Customize models
 - Create avatars
 - Download 123D Catch

RIP > FIX > BURN



RIP
ReCap Photo



FIX
Project Memento



BURN
Objet 3D print

Capture > Create > Communicate

Example of Migration & Proliferation of AURA



...good quality digital facsimiles both propagate and add layers of significance and meaning to the original...
Lafour & Lowe, 2011



See cosmowoman.com for the video and examples of his work

Research & Outcomes



| | |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hybrid realities for interpretively rich cultural experiences | <ul style="list-style-type: none"> Visualisation, audification and interaction systems Phenomenological co-presence in embodied cultural landscapes |
| Place and presence in heritage environments | <ul style="list-style-type: none"> The restitution of heritage Multi-sensory, multi-modal virtual environments that can be imaginatively and physically inhabited |
| Applied culture & heritage environment evaluation | <ul style="list-style-type: none"> Human-computer interaction methodologies for <i>Smart Culture and Heritage Futures</i> Socio-cultural analysis, information systems theory, heuristic evaluation, usability studies |
| Culture & Heritage Theory | <ul style="list-style-type: none"> Media Theory, Art Theory Tourism Studies, Game Studies, Digital Humanities, Asian Studies, Archaeology, domain specific Humanities HCI and Computational Semiotics informing a meaningful cross-disciplinary approach to <i>Smart Culture and Heritage Futures</i> |

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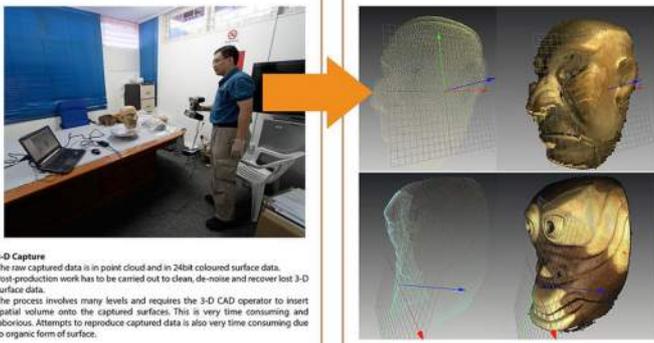
~ Case Study 2011 Collaboration Project ~ University of Malaya & Multimedia University



UM Asian Art Museum 111 Masks - poorly documented and stored
Masks suffering neglect and decay

MMU - hand held white light scanner

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3-D Capture
The raw captured data is in point cloud and in 24bit coloured surface data. Post-production work has to be carried out to clean, de-noise and recover lost 3-D surface data. The process involves many levels and requires the 3-D CAD operator to insert spatial volume onto the captured surfaces. This is very time consuming and laborious. Attempts to reproduce captured data is also very time consuming due to organic form of surface.

Mah Meri Mask Project
UM & MMU
2011 - 2014

Mask Project RP Replicas



RP replicas
1:50 scale

Intangible Heritage Content



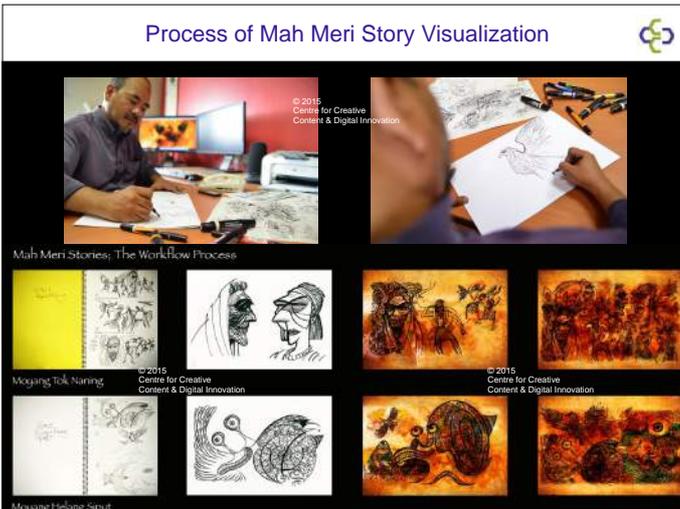
The Mask of Moyang Sembuar



Moyang Sembuar or the whirlpool spirit has a very sad story. A fisherman got lost in a whirlpool at sea and never returned home. His son had a dream in which his father told him to bring several items as offerings to the sea; washed rice, white rice, yellow rice, areca leaves, tobacco, and areca nuts. When the son brought these items and threw them into the sea, his father's clothes were washed ashore.

*This mask is part of the UM Museum of Asian Art's collection of 111 old Mah Meri masks and was once used in a healing ceremony and then thrown away into the water after the ceremony.

Process of Mah Meri Story Visualization



Mah Meri Stories: The Workflow Process

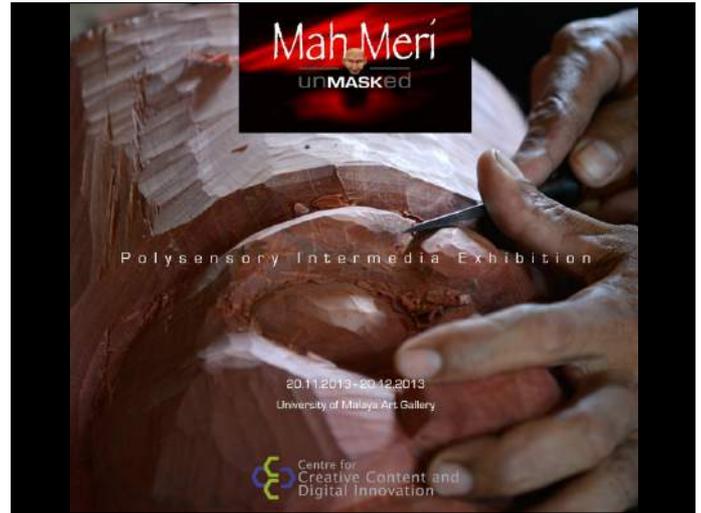
Moyang Tok Naring

Moyang Piring Output

Hari Moyang Jo'oh Dance

360 Spherical Capture (LadyBug3 Camera @ 15fps, 12mp)





Key Design Considerations

- Polysensory Intermedia Exhibition
- Expression of Digital Humanities
- Trans-disciplinary Research-Creation
- Information Complex ~ Information Design
- Unfolding Scenographic Event Structure
- Explore: Sense of Virtuality, Spatial Practice, Digital Mediation, Multimedial Gallery, Curatorial Design

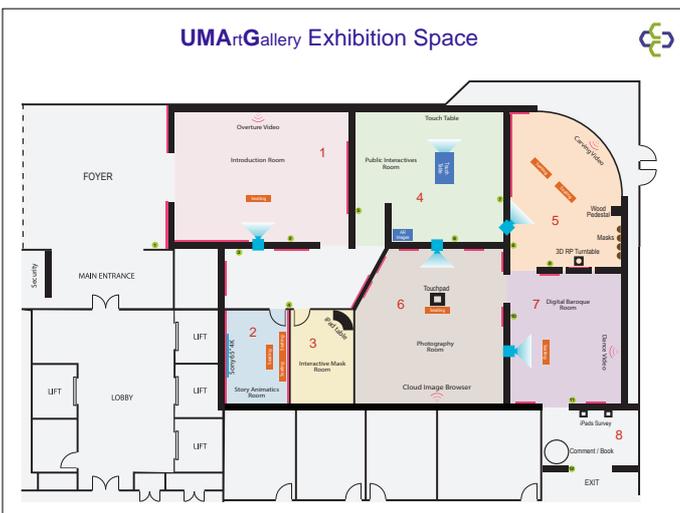
REFERENCES

1. Thwaites, Harold. 2013. Digital Heritage: What Happens When We Digitize Everything? In Ch'ng, E., Gaffney, V.L. and Chapman, H. (Eds.), Visual Heritage in the Digital Age. Springer Cultural Computing Series.
2. Balsamo A. 2011. Designing Culture. Duke University Press, Durham and London.
3. Thwaites H. 1999. Visual Design in Three Dimensions. In Jacobson R. (ed) Information Design. MIT Press, Boston.
4. Mark M., Thwaites H. 1990. Aesthetical Information Impact of Spatial Information Complexes. Concordia University, Montreal, Canada.
5. Dzianek, Vince. 2012. Virtuality and the Art of Exhibition: Curatorial Design for the Multimedial Museum. Bristol, UK: Intellect.

C.O.P.E. for the Mask Project

| Input | Output |
|--------------------------------|-----------------------------------|
| Book 1 (1997) & Catalog (2000) | Printed Book (academic) ★ |
| Archival Photos & Video | e-Book (iPad based) ★ |
| 60 Captured Stories (Audio) | Video Documentary ★ |
| 2D Photos & 3D Scans | Projected Multi-image Exhibit ★ |
| Video Capture & 3D | Touch-Table Interactive Content ★ |
| 360 Degree QT | Website - Storytelling ★ |
| | Content back to community ★ |
| | Demos, Papers, Conferences ★ |

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Exhibition Scenography



Exhibition Scenography



Exhibition Scenography



Exhibition Scenography



Exhibition Scenography



Exhibition Scenography



Google CULTURAL INSTITUTE

http://mah-meri-unmasked.culturalspot.org

Pano Exhibit Tour = goo.gl/xaq9QT

MAH MERI UNMASKED POLYSENSORY EXHIBITION 2013

Facebook Homepage

Mah Meri unMASKED

Start

digital revelations of a craft that embodies spirituality, myths, and artistic

Share

Console

1000+ Visits and Guest Experiences

1000+ Visits and Guest Experiences - Comment Books

Ich finde diese Publikation sehr interessant! Ich möchte auch noch einmal hier kommen. Mah Meri gefällt mir sehr gut! Ich würde auch Sie die andere Sprache finden und zu uns helfen.

Ich liebe sie!

Very nice! Thank you for this interesting work. Mr. Zaidur & Department of Design & Architecture University of Daejeon

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The handbook Project

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This collaborative **research-creation** project not only examines the themes of age and ageing, but also how people's hands tell stories. It explores gender, ageing, work, craft, passion, and tacitly that will be documented and archived.

In collaboration with participants, the project uses an ethnographic/interview approach to intangible heritage. The results will be presented through transmedia story telling.

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Malaysian Traditional BOATBUILDERS

tech

Digital walk through heritage

Local heritage at IqB is now presented a digital form. IOWAN ISMAIL has for story



University of Malaya ~ HIR Project ~ Gender Studies

Dr. Welyne Jeffrey Jehom

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1st Research-Creation Capture Trip ~ 19-23.08.13
 2nd Research-Creation Capture Trip ~ 05-11.02.14
 3rd Research-Creation Capture Trip ~ 24-29.08.14

700+ Images ~ 24hours HD & 4k Video

The pua kumbu, the hand woven warp ikat textile of the Iban, represents the quintessence of Iban culture.

It is, depending on the design, an historical archive, a mythological or religious story or a personal tale.

It is a statement about the soul of the weaver and her relationship with the spirits.

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Many types of roots, bark and leaves may be used in addition to the basic ingredients, in order to create the shades of colour desired by the individual dyer.

There is no written documentation of Iban cultural history, it is impossible to trace an accurate record of the origin and development of this textile tradition. History is best remembered through oral traditions passed down from generation to generation.

The textile is used for the entire gamut of life rituals, and none would be complete without it. The designs of a **pua kumbu** define the rituals for which it is to be used, and the ritual itself is given a special individual quality by the use of a particular **pua kumbu**.



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A pua kumbu can mediate between the human and the spirit world, and for this reason, the cloth has spiritual power woven into it with its design. Only a very experienced weaver can make one of these pua.



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Raja Tambi (Indian Prince)

Niga duduk remang berasok
Lenuk-lenuk ngeruruk sayo bulan pegari
Niga bekayo remang bebluh
Nembuk tengkujuh panchur hari
Niga berintai remang bejalai
Singai-singai minta timpal ambai ya
Raja Tambi

An Iban woman (symbolised as Niga - dragon) stares at the clouds each day that come in different colours (sunset), darkened by the moon, sunrise and heavy clouds of thunderstorms, searching for the image of her lover, the Indian Prince who was cremated.

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Various patterns and colour variations of the Pua



Importance of the Project

- Preservation of fading heritage
- Conservation of weavers "motifs"
- High-res imagery with Colour Fidelity
- Analysis of colour, texture, yarns, dyes, weaving process
- Conservation of unique Pua Kumbu stories
- "Mapping" ~ weavers - stories - motifs
- Documentation of the weavers' creation process
- Digital archive for future research
- Post-Digital Intermedia Exhibition

So...What do we learn?



- + Increased interest in DH / HS - “urgency”
- + **Access** to remote, lost or closed sites
- + Awareness of **global humanity** >> Teamwork
- + Cross and **inter-cultural** communication
- + Satisfy “time-travel” fantasy, history, etc
- + Interest the young in DH **preservation** & careers
- + Proliferation of “aura” beyond object into digital
- + **Transdisciplinarity** of projects is key
- + - Born-Digital can be “delicate” content: VV & DD
- DH, HS, Technologically **intensive** and often **\$\$**
- + Competes with “Hollywood” **perceptual stereotypes**
- + **MUST** be **curated**, versioned & archived
- + **Ellipses** in overall “heritage value”
- + Often helps **increase** site tourism



Project Guidelines



1. **Keep** documentation and make it available on a project website (describing the extent, provenance and selection methods).
2. **Have** a clear idea of your users, consult them early, maintain contact during project.
3. **Follow** established Standards & Guidelines > *Good Science*
4. **Carry** out formal user surveys, software and interface tests and integrate results into project design.
5. **Access** good technical support, ideally from a UCOE in DH
6. **Recruit** staff who have both subject expertise and knowledge of digital heritage techniques. Train them as needed.
7. **Maintain** and update the interface, content and functionality of the resource. Do not just archive it, or desert it.
8. **Disseminate** information widely, COPE, inside and outside of DH.
9. **Practice** Smart Culture for Heritage Futures

Digital Humanities in Practice, 2012

5 Key Challenges to HS



- Supporting HS research/creation innovation
- Encouraging transdisciplinary collaboration
- Building access/audience & engagement
- Managing collections/archiving/curating
- Coping with technological evolution

5 Key HS Ponderings



How can creative approaches extend and enhance our experiences of heritage and enable new forms of interpretation and knowledge exchange ?

How can heritage science contribute to a nation's cultural heritage (tangible/intangible) prosperity ?

What social and economic impacts can our evolving digital histories have on a global scale ?

What forms of heritage science approaches can help enable an increased digital inclusion and participation of excluded groups ?

How much information is enough?

Closing Quote



"We shape the destiny of the future with our stories about the past by the effects of our imperfect presentations on the enthusiastic minds of the public"

Ben Britton, 1996,
VSM 2nd International Conference, Gifu Japan

luxigor