FINAL REPORT [prepared 1 July 2018]

[Based upon Version 8_PROJECT BUDGET AND OUTLINE OF ACTIVITIES dated 21.11.17]

‘EASS DIGITAL HUMANITIES PROJECT’

Funded by the Division of Education, Arts and Social Sciences, initiated by the 2017 PVC Professor Denise Mereydth.

Report forwarded to the 2018 PVC Professor Joanne Cys.
DIGITAL HUMANITIES PROJECT

EXECUTIVE SUMMARY

This project undertook a scoping study of digital humanities research being conducted at South Australia’s universities such as UniSA and Flinders, as well as cultural institutions such as the State library. It looked nationally and internationally at institutions with scholars in the digital humanities to scoped aspects of the digital humanities field. It proposed to develop as well as test some preliminary work produced at UniSA - called the “Aceh Method.” This conceptual framework was designed as a multi-disciplinary platform, its potential scope and limitations were examined for the purposes of...recording, referencing, re-interpreting, remembering and transcribing historical built cultural heritage at risk information for application or insight into contemporary societal conditions to link knowledge structures from the diverse and interdisciplinary fields of digital humanities research.

We achieved all of the project goals as outlined in the following document. We also exceeded them in the following areas:

- Dissemination of the work beyond Aceh to Bali, Jakarta, Jogyakarta in research institutions and professional representative bodies such as the Indonesian Institute of Architects [IAI] and Public Archives in Jakarta.
- IAI expressed interest in continuing our documentation work and wanted us to instruct them as to how it might proceed.
- An invitation to stage an exhibition of the work and international seminar in Leiden University the Netherlands with our Oral Traditions Association colleagues from Jakarta.
THIS PROJECT WAS PROPOSED AS A.....

A CASE STUDY BASED INITIATIVE:

led by Dr Julie Nichols, to:

- Connect researchers working in the Digital Humanities at UniSA and enhance research connections between AAD and formerly CIL, now Creative Industries.
- Explore a conceptual framework required to produce an innovative prototype for Built Environment records management in the context of vernacular architecture in Aceh, Indonesia.
- Use the conceptual framework as a case study to explore Digital Humanities data management, the linking and presentation of information to use in other contexts, and humanities disciplines, working with industry partners including the GLAM sector and ERSA.
- Devise partners and a plan towards an interdisciplinary project foundation with the Acehnese Government to apply the research methodology on the ground and to explore its potential as a transferrable model for other contexts.
BACKGROUND + PROJECT LEADER’S RESEARCH

Julie’s current research focus within the digital humanities field...

Recording and referencing, re-interpreting, remembering and transcribing the vernacular knowledge of Aceh’s built cultural heritage for future re-conceptualisation such as ‘ways of seeing and knowing’ the past for insight into application in contemporary and future societal conditions.

Problem no. #1: Locally held Acehnese built cultural heritage archives were destroyed in the 2004 Tsunami (some records remain in Jakarta and The Netherlands) and the key people with much of the traditional knowledge of building and craftsmanship of the early Acehnese houses in timber lost their lives in the disaster.

Problem no. #2: The original records were predominantly in analogue forms and only held in one place, and the oral and vernacular knowledge forms had not been transcribed.

Problem no. #3: With no records to which to refer during the post-disaster reconstruction and under the instruction/direction of well-meaning NGOs, but as victims of severe trauma, the displaced Acehnese accepted the meagre options for re-housing with which they were presented. These did not suit their socio-cultural, environmental and religious needs, and ultimately compromised their long-term recovery from these natural disasters.

Long-term Aims:

1. Create a built cultural heritage database resource and reference for future post-disaster reconstruction management strategies of traditional housing types suited to the environmental and socio-cultural conditions of the Acehnese.
2. Use multi-modal methods from architectural ethnography (VERNADOC), digital photographic capture (gigapan, photogrammetry), videos and sound recordings (ethnographic documentaries); laser scanning buildings; 4K video (360 degree capture); Augmented reality and virtual reality to construct/design/conceptualise and link all these diverse forms of information within an interactive and online digital user interface and relational data platform (equivalent to some notions of a virtual museum) to enable multiple end-user engagement with the archival material.

Long-term Objectives:

1. Involve end-users and local contributors/maintenance to the archival database [aid organisations NGOs; Aceh Government; Tsunami Disaster Mitigation Centre TDRMC; Google – VR glasses; Samsung accessible by mobile handsets and 4G network [Telkomsel networks]; University of Syiah Kuala] in this archival creation process so they are aware of the database and what it contains, and how it may be accessed and used with the available technology.
2. Document and disseminate this method [Aceh Method] as a pilot study for heritage at risk so that it may be tested for other applications in other contexts e.g. natural disaster-prone areas [flood, bushfire, tornadoes, cyclones] and sustainable tourism of heritage sites.
3. Use data from sites in Aceh to test the methodological framework and base multi-modal platform.
Long-term Outputs:

1. National Library of Australia or another cultural/research institution invests in this “Aceh Method” as an extension of their SEAsian archives to include built cultural heritage records, given ANU’s new School of Design, and established SEAsian studies program.
2. Utilise this “Aceh Method” conceptual framework to test its application as a resource for insurance companies to facilitate the fast-tracking of post-disaster reconstruction, minimising costly delays in re-housing and within the new area of focus namely the corporate world’s “human centred design”.
3. Publishing on the “Aceh Method.”

Long-term Impact measures:

4. Measuring the impact of this work locally and internationally through hash tags and citations in google scholar for the “Aceh Method.”
   i. employ tracking tags to model to measure impact
PROBLEMS, AIMS AND RESEARCH QUESTIONS:

Enquiries based on the following problems:

Problem no. #1: The digital humanities areas of research is so broad and the applications and storage of information may be too diverse to be accommodated utilising one main method. [Q: DEFINE DIGITAL HUMANITIES?] - See responses by email from leading academics in EASS.

Problem no. #2: Multi-modal storage databases are not new and the “adding” to these systems requires constant maintenance, selection and adjustment due to technological change. Therefore, sufficient funding support needs to be secured to be up to date, accurate, and available for dissemination globally for the research material to remain current and worthwhile. Large cultural and research institutions may have established this funding model if so, who are these “big players” and who might work with us as partners? [Q: HOW DO GLAM DO DIGITAL HUMANITIES IN OUR DISCIPLINES?]

Problem no. #3: Can UniSA make a contribution in its disciplinary areas and make an impact into improving methods for the institutions which have been tackling these ideas for 15 years or more? Determine the possibilities of UniSA’s contributions from the scope and limitations perspectives? Can UniSA make an impact into this area on a small and focused scale? [PROPOSE OUR IMPACT?]

Problem no. #4: To what extent can UniSA’s method and fields of research knowledge be made readily accessible to countries without large downloading capacity, due to poor internet infrastructure, to realise the potential of 4G networks and mobile phone applications to enable an equitable distribution of knowledge to many parts of the non-western world or remote areas? [perhaps this is our main contribution??] [ACCESSIBILITY THROUGH SMARTPHONE, TECHNOLOGY OF 3RD WORLD ACCESSIBILITY?]

Aims:

1. Establish the conceptual and methodological framework for the “Aceh Method.” Through which there is a linking and dissemination, storage, recording of multi-modal forms of data as a model for a built cultural heritage archive.

2. To scope the possibilities and limitations of this model to apply to other fields of research within the humanities in which UniSA and our partners have interest and expertise as a source of future incubation for knowledge in these disciplines to connect to larger digital humanities repositories.

Broad Research Questions:

- What does digital humanities mean in 2017?
- What is UniSA’s contribution to digital humanities in 2017?
- What could UniSA’s contribution be to digital humanities in the future?

Specific Research Questions:

- To what extent may the ‘Aceh Method’ apply to other DH disciplines at UniSA?
- To what extent can UniSA offer a unique contribution to the global practices of DH?
OBJECTIVES AND IMPACTS:

1. Connect with people within UniSA, S. Aust, Australia working in DH
   a. UniSA – Chris Garnaut, Adrian Franklin, Kiera Lindsay, Susan Luckman, Brad West, Ben Stubbs, Jeanne-Marie Viljoen… [AAD + CIL + ITEE ??]
   b. Flinders Uni – Tully Barnett / Contact the Ausstage people. Jenny Fewster is the project manager and has been since the projects started
   c. Adelaide Uni – Humanities Dept??/CAMEA
   d. University of Melbourne [See: http://esrc.unimelb.edu.au/about/tools-and-technology/hdms/ Key contact Gavan McCarthy at eScholarship Centre]
   f. Define digital humanities or perhaps redefine or rename?
   g. Define digital humanities at UniSA, gain our academics understanding and contribution, and how the ‘Aceh Method’ may suit their work?
   h. GLAM sector definition for digital humanities.

2. Conduct targeted Symposium SA re: end-user/researcher engagement

3. A conceptual framework behind pilot study/prototyping project
   a. Naming rights to the “Aceh Method”

4. Scope international institutions in digital humanities and their approach [Ghetty/Smithsonian/V&A etc].

5. Linkage foundations/identify partners and main research question.

Potential Future Impacts:

1. Impacts of Research [5years +]
   a. development of the conceptual framework behind the “Aceh Method” as a prototype for recording, archiving, digitising, storing, accessing digital information in multimodal forms for built cultural heritage
   b. Aceh Government/University of Syiah Kuala to measure impact locally of the model in work with TMDRC [Tsunami Mitigation Disaster Research Centre] and other NGOs
   c. Promote the ‘Aceh Method’ in Indonesia and Australia, to be written into future management strategies for post-disaster reconstruction guidelines/policies.
PROJECT PLAN:

Research Assistants/Participants:

Dr Susan Avey [SA], Mr Darren Fong [DF], Dr Julie Nichols [JN], Mr Chris Burns [CB], Mr James Wilson [JW]

Events/outputs and Indicative Budgets

1. Teaching buy out [OCT-NOV 2017]

2. Desktop Academic Scoping Study [begin OCTOBER/30 NOVEMBER 2017]

METHODOLOGY + Source DH local, national, international major players

a. LITERATURE SCOPING REVIEW OF THE FOLLOWING [in context of the broad and specific research questions outlined above]:

i. Forms of dissemination/interfaces [DF]
   - Web-based platforms
   - 4G smartphones
   - Mobile phone apps

ii. Storage/interaction [DF + JW]
   - Relational database [drupals?]
   - AR & VR
   - Gaming engines (DF’s recommendation)
   - Gigapan/Easypano/BIM

iii. Multi-modal archiving for digital and cultural heritage [JN]
   - Current projects in SA, nationally, internationally
   - Methods
   - Limitations
   - Benefits

iv. Ways of seeing – conceptualisation [JN]
   - Draft paper prepared and attached (prepared for Prof Samer Akkach’s publication edited book).
   - Presentation for Indonesian Universities, Vice Governor of Aceh and National Trust South Australian Chapter attached.

v. Potential Players locally and nationally [JN]
   - UniSA/Flinders/ANU/UQ/Uni of Melb/RMIT/
   - interviews

vi. Leading Players internationally in DH [SA]
   - Ghetty
   - Metropolitan Museum of Modern Art??
   - Smithsonian??
   - Victoria Albert Museum London?
   - Tate Modern?
   - Mesch?

b. Areas to cover within in DH project will be focussed around our people’s expertise and how to record their work. [JN]

c. Technical processes and current limitations based on literature and institutional scoping (see above literature scoping exercise and topics) [CB]

d. Prototyping ideas/framework explore possibilities – interviews with UniSA CIL/AAD and compile recommendations. Questionnaire put to Associate Heads of Research in each school in EASS.
3. Secure Indonesian partner interest [OCTOBER 2017]

METHODOLOGY + ENDUSER SCOPING POTENTIAL MEETINGS/CONFERENCES

Aceh Government support as an end-user partner and UnSyiah an institutional partner

a. Meet with Aceh Government/Vice Governor of Aceh completed October 2017 and April 2018.


c. Present ‘Aceh method’ at ATN event; Triskati University; Aceh Conference and Mataram conference for feedback. Completed October 2017.

d. Meet with future stakeholders and contributors to the “Aceh Method” in this project, Banda Aceh, Mataram, Bali.

UNUD, Bali particularly interested and inviting Govt of Denpasar to our next meeting in June/July 2018.

Summary of outputs/deliverables here: notes of meetings on role of Aceh Government and commitment to further collaborations through future end-user roles; notes of meetings with central Jakarta archivists, the value of this proposal and how it may be maintained through their institution. Two conference papers.

4. Prototyping ideas/framework explore possibilities for the pilot Aceh Method [NOVEMBER-DECEMBER 2017]

a. 1x pilot study model PART 1 - Software Easypano software – 3D walk through model prepared and presented in Indonesia, incorporated VR Camera images.

b. 1x pilot study model PART 2 - VR model produced by RA using Unity of the Aceh House to test the multimodal framework and present it to our colleagues and endusers the village in Lambunot via mobile devices using google cardboard.

c. 1x conceptual framework pilot study PART 3 - Conceptual linking of all of these ideas still in process possibly to prepared in another form through communications with Andrew Thomson [formerly TIU/EASS], in addition to Dr Andrew Yip from [post-doctoral fellow UNSW]. More work is needed to address downloading issues with slow internet speeds...what is on offer for these situations? Data storage management and access....

Summary of outputs/deliverables here: literature scoping on different DH storage and disseminations tools and methods – investigating gaming platforms; multi-modal formats; defining what this digital tool will do for whom and why it is of value? Test the 360 degree video in next site visit to Aceh Oct 2017 as an additional form of representation.

5. Preliminary Meetings [Canberra, Melbourne, Brisbane] [Nov/Dec 2017]

Canberra – ACHRC Australasian Consortium Humanities Research Centre ANU for 9, 10 Nov 2017

1. Canberra - ANU – Design School – attended the Australasian Consortium of Humanities Research Annual Meeting with 2 days of presentations on the state of the digital humanities.
2. Canberra – NLA – met with Ibu Tieke to discuss possibilities of funding an expanded multi-modal database.
3. Canberra – ANU – Faculty of Humanities – Emeritus Prof Anthony Reid and Emeritus Prof Virginia Hooker experts in Acehnese history and Islamic Studies.
4. Brisbane – University of Queensland – Met with Digital Heritage colleagues for suggestions on leading scholars with whom they are in contact and sourced Prof Brian McGrath from New York Parsons Design School to skype in to our DH Symposium through my contacts Assoc. Prof Chris Landorf and Dr Kelly Greenop.
6. Melbourne - RMIT – Social Media and mobile phone platforms for dissemination and research opportunities - Met with Distinguished Prof. Larissa Hjorth.

6. Symposium + workshop at UniSA [Feb 2018]
   Extend targeted invitations [see final attached participants list]
   a. UniSA AAD + CIL/CI + Samsung SmartSchool– staff included on the above list
   b. ERSA [EResearch SA] – Mrs Alexis Tindall
   c. State Library – Mrs Annette Mills
   d. Flinders University – Dr Tully Barnett
   e. National contacts Dr Andrew Yip & Dr Rachel Kendery
   f. Other end-users in Govt
      i. DEWNR – Mr Michael Queale, Dr Louise Bird, Mrs Kirsty Neild.
      ii. History SA – Dr Kristy Koegl

Call for abstracts, target researchers, end-users and interested public. After symposium call for papers to publish into edited journal.

Summary of outputs/deliverables here: present scoping to date and preliminary ideas around the “Aceh Method” and ascertain from stakeholders how this might be applied for their fields of research. Seek feedback from participants.

7. Academic output [FEBRUARY 2018]
   a. Prototyping method conceptual framework outlined.
   c. Symposium abstract booklet – see attached
   d. Podcasts of symposium – completed and uploaded to website refer......
   e. CFPs from select symposium participants - requested full papers for 1 August 2018 but now re-thinking call to be part of DHA publications.

Summary of outputs/deliverables here: present provisional conceptual framework ideas around the “Aceh Method;” interested stakeholders; draft this as a publication on exploratory methods for DH specific fields of research...
PROJECT BUDGET

Events/outputs and Indicative Budgets

1. Teaching Buy Out [begin OCTOBER/30 NOVEMBER 2017]

Course coordination Arch1020 Arch & Environment Sp5 2017

i. Jasmine Palmer to Course Coordinate from Oct 6
ii. 2 x 2 tutors x 5 wks @$133.89 + 16.5% on cost $3119.64
iii. Marker for 19 assignments S2 @ $17.79 + 16.5%
iv. Marker for 19 assignments S3 @ $8.90 + 16.5%
v. Marker for 20 assignments S2 @ $17.79 + 16.5%
vi. Marker for 20 assignments S3 @ $8.90 + 16.5%

Total $1212.66

1 x marker for Arch3028 Arch & Ecology Sp517

vii. 30 assignments @ $17.79 each + 16.5% on costs $621.76

Julie to maintain Course Coordination of Arch Design Studio 6

viii. 26 assignments @ $26.69 each + 16.5% on costs $808.44

ix. 2 x tutors for w12 studio session in my absence.
   2 x 2 tutors @ 5 hrs each @ $64.56 + 16.5% on cost $779.97

Teaching Budget $6542.47

2. Desktop Academic Scoping Study [begin OCTOBER/30 NOVEMBER 2017]

METHODOLOGY + Source DH local, national, international major players

• LITERATURE SCOPING REVIEW OF THE FOLLOWING [in context of the broad and specific research questions outlined above]:

  x. Forms of dissemination/interfaces
     1. Web-based platforms
     2. 4G smartphones
     3. Mobile phone apps

  xi. Storage/interaction
     1. Relational database [drupals?]
     2. AR & VR
     3. Gaming engines (DF’s recommendation)
     4. Gigapan/Easypano/BIM

  xii. Multi-modal archiving for digital and cultural heritage
     1. Current projects in SA, nationally, internationally
     2. Methods
     3. Limitations
     4. Benefits

  xiii. Ways of seeing – conceptualisation
     1. Literature on abstract ideas of connecting information and why.
     2. Linking of different interdisciplinary information for new insight, evidence.
Potential Players locally and nationally
1. UniSA/Uni of Adel/CAMEA/Flinders/ANU/UQ.
2. interviews

Leading Players internationally in DH
1. Ghetty
2. Metropolitan Museum of Modern Art??
3. Smithsonian??
4. Victoria Albert Museum London?
5. Tate Modern?
6. Mesch?

Areas to cover within in DH project will be focussed around our people’s expertise and how to record their work.

Technical processes and current limitations based on literature and institutional scoping (see above literature scoping exercise and topics)

Prototyping ideas/framework explore possibilities – interviews with UniSA ITEE/CIL/AAD and compile recommendations

Other funding streams to be identified other than ARC

RA for 60 hours $3120

Summary of outputs/deliverables here: literature scoping on points i-vi; interview notes of meetings on prototype method; compile these recommendations and people potentially to be involved.

3. Secure Indonesian Partner Interest [begin OCTOBER/30 NOVEMBER 2017]

METHODOLOGY + ENDUSER SCOPING POTENTIAL MEETINGS/CONFERENCES

Aceh Government support as an end-user partner and UnSyiah an institutional partner
i. Meet with Aceh Government/Vice Governor of Aceh
ii. Meet with Jakarta document storage/archival people
iii. Present ‘Aceh method’ at ATN event; Triskati University; Aceh Conference and Mataram conference for feedback.
iv. Meet with future stakeholders and contributors to the “Aceh Method” in this project, Banda Aceh, Mataram, Bali and Mataram.

Divisional sponsorship for flights and accom
International flights, internal flights, orbit fees 10 day trip x1 $2000
International flights, internal flights, orbit fees 10 day trip x1 $2500
Accommodation x2 10 nights @ $130 ea inc breakfast $2300
Meals $200
Transport $200
Networking Dinners (Jakarta, Aceh, Bali, Mattaram) $1000
Material Costs $200
Gifts $150

$8650

Summary of outputs/deliverables here: notes of meetings on role of Aceh Government and commitment to further collaborations through future end-user roles;
notes of meetings with central Jakarta archivists, the value of this proposal and how it may be maintained through their institution. Two conference papers.

4. Prototyping ideas/framework explore possibilities for the pilot Aceh Method [NOVEMBER-DECEMBER 2017]

1x pilot study model PART 1
Academic/technical support for investigations into method

120 hours $6240
Software Easypano software $1000
360 degree video camera Ricoh THETA V 360 4K spherical VR Camera $550

Andrew Thomson [TIU/EASS] as a digital learning adviser as well as a scoping strategy for the technical components of the project. Downloading issues with slow internet speeds...what is on offer for these situations? Data storage management and access...

Prepare conceptual framework pilot study PART 2

TECHNICAL/academic support/VR/GAMING? $8000

$15790

Summary of outputs/deliverables here: literature scoping on different DH storage and disseminations tools and methods – investigating gaming platforms; multi-modal formats; defining what this digital tool will do for whom and why it is of value? Test the 360 degree video in next site visit to Aceh Oct 2017 as an additional form of representation.

5. Preliminary Meetings [Canberra, Melbourne, Brisbane] [Nov/Dec 2017]
   i. Canberra - Conference Digital Humanities ANU for 9, 10 Nov 2017 [AHRC- Annual Meeting of the Australian Humanities Research Consortium]
   ii. ANU – Design School, NLA, University of Canberra
   iii. Brisbane/Gold Coast – University of Queensland
   iv. Melbourne – University of Melbourne

Project coordinator support 20 hours say $1000
RA academic support 20 hours say $1040
3xFlights $3000
Accommodation 4 nights @ $130 per night $940
Meals $200
Transport $300
Sub total $6480

6. Symposium + workshop at UniSA [Feb 2018]
   Extend targeted invitations
   a. UniSA AAD + CIL + ITEE
b. ERSA [EResearch SA], State Library, Art Gallery

c. CAMEA, Uni of Adel, Flinders Tully Barnett

d. National contacts Andrew Yip + Rachel Kendery

e. Other end-users in Govt DEWNR, History SA, National Trust

Call for abstracts, target researchers, end-users and interested public.

After symposium call for papers to publish into edited journal.

f. RA support for research component of method 100 hours $5740.

g. Event Catering/room hire etc $1600

h. Charge a nominal fee of $50 per participant $2080

i. Project coordinator of this event 40 hours support

Total budget estimate $9420

Summary of outputs/deliverables here: present scoping to date and preliminary ideas around the “Aceh Method” and ascertain from stakeholders how this might be applied for their fields of research. Seek feedback from participants.

6. Academic output [FEBRUARY 2018]

j. Prototyping method conceptual framework outlined.

k. Include: 1. Scoping; 2. Feedback response reframing report

l. Symposium abstract booklet

m. Podcasts of symposium

n. CFPs from select symposium participants.

Summary of outputs/deliverables here: present provisional conceptual framework ideas around the “Aceh Method;” interested stakeholders; draft this as a publication on exploratory methods for DH specific fields of research…

7. Teaching Prep for SP2 2018 [FEBRUARY 2017]

Sub-total draft budget $49902.47

Total budget $50000.00

Notes:

1. Report to Chris Garnaut for scope/guidance/project delivery.

2. Report to EASS Dean of Research/PVC on costings/EASS Research office.

3. Reporting on expenditure to Jo Cys.

SUMMARIES OF “PROJECT PLAN” SECTIONS

INTRODUCTION
This project was conducted from October 2017 – May 2018.
The stages of the project are outlined below.

DEFINITION:
‘Digital humanities focusses both on the application of computing technology to humanistic enquiries and on humanistic reflections on the significance of that technology,’ (Sula 2013 p. 16).

Dr Jeanne-Marie Viljoen’s definition: the digital humanities refers to how knowledge in the humanities (such as literature, art, journalism, architecture, history and philosophy) is organised, produced & consumed in the digital environment including but not limited to VR, databases, digital archives, gaming, film and social media.

Teaching buy out [OCT-NOV 2017]
The teaching buy out of Architecture and Ecology one of the three subjects I was coordinating in SP5 2017 greatly assisted in my time management to deliver on the Digital Humanities Project goals.

Desktop Academic Scoping Study [begin OCTOBER/30 NOVEMBER 2017]
LITERATURE SCOPING REVIEW OF THE FOLLOWING [in context of the broad and specific research questions outlined above]:

DISSEMINATION/INTERFACES

[Df]
Web-based platforms:
• Needs to operate outside the University as it cannot support the dissemination requirements. The restrictive policies governing University content means this type of information is not freely accessible nor allowed by the security software.
• Open websites permits free access and potentially gives the public abilities to upload content and comment on the topics presented.
• Internationally most people and communities have access to websites either via smart devices of computers.

4G smartphones:
• Many people have smartphones across different demographics, but not all.
• These still present the most effect device for village communities in Indonesia due to their expense and mobility.
• They can present limited VR experiences for users through Google Cardboard.
• In our experience 4G coverage seems to be more successful and delivered at faster speeds than internet in developing countries such as Indonesia.
• They are small and have limited capacity in, bandwith, processing power and battery life.
• They can be expensive to upgrade any of these components.
• It is still possible to comment and upload materials.

**Mobile applications versus websites**

• Apps can allow for a portable version of the website or an easily readable/accessible on mobile devices.
• Processing power of the mobile device is the limitation
• Websites are easier to maintain.
• They are almost the same thing but if you have a desktop computer as well as a mobile then you need to maintain both.
• Microsoft are working on apps that work across both devices.

**Storage/interaction**

[DF + JW]

**AR & VR**

• AR overlays what you are currently looking at and you therefore need to be onsite.
• AR is also in its infancy for dedicated consumer products, however with mobile devices is possible but was not explored in this research.
• AR dedicated devices are expensive and mobile devices require dedicated applications and can be expensive.
• VR was a good exercise to trial but exorbitantly expensive and the more detail you add the more cost and hours of model building in our experience.
• VR requires extensive processing power for the final output.
• VR usually requires a specialist to build and optimise the model and the VR environment.
• VR does not necessarily deliver on the sensory experience of the ‘real’ world examples, this requires additional resources to add the information overlays to complete the VR experience.
• VR was built using a Unity Gaming Engine.

**Gigapan/Easypano/BIM**

[DF]

• Gigapan produces ultra-high resolution spherical environments which can be accessed by Oculus as well as mobile devices and google cardboard.
• This can be knotted together in software such as Easypano Tourweaver to provide point to point navigation with text, image and video overlays.
• The problem was the software was not able to process ultra large gigapixel panoramas.
• The trade off was that it takes time.
• But comparatively to VR is that 4 houses could be comprehensively documented in the same time it took to produce 1 house in VR.
• BIM is not useful for buildings that are vernacular, as it is a precision tool.
• The building would need to be dismantled to implement BIM processes.
• Each component needs to be modelled in BIM for the correct size and proportions which are not suited to vernacular organic forms, best adopted where there is a large degree of uniformity of elements.
• In summary BIM requires mass produced machined elements in the building above non-conformity of structures which are typical of the vernacular.

MULTI-MODAL ARCHIVING for digital and cultural heritage [JN]

REPORT_DHproject plan v8_EASS DH project 2017_180701_JULIE NICHOLS
Current projects in SA, nationally, internationally

There are infinite amounts of projects of different disciplines opting for the digital humanities research groupings. This is evident in the ACHRC annual meeting program which was held in Canberra and I attended. To gauge interest in the “spatial and critical” digital humanities nationally the DH Symposium hosted by UniSA in February 2018 identified a broad range of perspectives (see attached abstracts booklet).

In terms of multi-modal archiving Associate Professor Gavin McCarthy from University of Melbourne stated it is possible to have a variety of alternatives with the “front end” materials but it is the raw data that must be input and extracted in the same way. The complexity of the interface is not as important as the extractable nature of the raw data.

WAYS OF SEEING – conceptualisation

Draft paper prepared and attached (prepared for Prof Samer Akkach’s publication edited book).


Pdf Presentation for Indonesian Universities, Vice Governor of Aceh and National Trust South Australian Chapter attached.

Prepared presentations for the following institutions and professional organisations.

- University of Gadjah Mada, Jojakarata – public lecture with students present from Curtin University, as well as Masters students of architecture.
- Attended ARCAAsia Architects Forum Closing dinner for post-disaster reconstruction.
- Udayana University, Denpasar, Bali – Masters of Architecture students and staff. President of Indonesian Institute of Architects [IAI], Bali Chapter.
- Pusat Dokumentasi Arsitektur and IAI Jakarta Chapter presentation.
- University of Syiah Kuala, Banda Aceh undergraduate architecture students.
- Vice Governor of Aceh’s residence, Aceh media captured the event.

POTENTIAL PLAYERS locally and nationally

A good cross-section of the local and national digital humanities scholars attended our Digital Humanities Symposium. I am happy to provide the attended guest list, but have not included it here.

Note: This is not an exhaustive list but rather people who presented and participated at the Symposium and expressed interest in the concept.

UniSA

Our people’s expertise and how to record their work.

- **AAD includes**: Prof Ian Gwilt; Prof Ning Gu; Prof Simon Biggs; Dr Tim McGinley; Dr Martin Freney, Mr Dan McLean; Dr Julie Collins; Assoc Prof Christine Garnaut; Dr Linda Pearce; Mr Stephen Nova; Dr Kathleen Connellan; Dr Julie Nichols.
- **CI includes**: Prof Denise Meredith; Prof Susan Luckman; Prof Adrian Franklin; Dr Jeanne-Marie Viljoen; Assoc Prof Brad West; Prof Jason Bainbridge; Dr Ben Stubbs.
DIGITAL HUMANITIES SYMPOSIUM + EXHIBITION: was the culmination of the above academics collaborating around this event. See attached. [APPENDIX 9]

See attached blog notes from Dr Jeanne-Marie Viljoen from UniSA. [APPENDIX 8]

Locally

- State Library
- Heritage SA DEW
- History Trust of South Australia
- National Trust of South Australia
- Migration Museum
- Ausstage
- Flinders University – Dr Tully Barnett
- University of Adelaide were invited to participate but there was no response to the targeted invitations.

Nationally

Interviews were conducted at the following institutions with the listed academics:

- Brisbane – University of Queensland, Dr Kelly Greenop and Assoc Prof Christine Landorf [Digital Heritage]
- Melbourne – RMIT - Distinguished Professor Larissa Hjorth [Roles of Social Media in Society]
- Melbourne – University of Melbourne – Assoc Prof Gavin McCarthy [Preparation of digital archival materials]
- Canberra – Australian National University - Emeritus Professor Anthony Reid – [Aceh history], Emeritus Professor Virginia Hooker – [Islamic Art and Architecture/Indonesian]
- Canberra – National Library of Australia – Ibu Tieke – Indonesian Collections

Leading Players internationally in DH [SA] [APPENDIX 4]

It is now common practice for leading universities are now establishing centres which specifically identify with Digital Humanities practice. This encourages collaboration alongside technical expertise and training. DH appears to sit outside traditional disciplinary areas, but actually depends on collaborative of projects within the field. It enables an academic focus and methodological approaches to challenge or move away from more traditional frameworks, allowing epistemic communities of practice to emerge.¹ While many institutions teach subjects, or graduate programs with Digital Humanities titles and foci, supported by schools of art, science and humanities it has yet to establish it as a standalone discipline within the academy but is a growing influence in the University and GLAM sector.

See attached literature review and scoping study for lead institutions with Oxford University currently the most revered.

¹ See Tables 1.0-1.4
PROTOTYPING/FRAMEWORKS explore possibilities. [JN] [APPENDX 3]

This was the Aceh Method with a VR component extending the current body of work. See attached Vice Governor of Aceh Presentation for an explanation of the proposed framework.

QUESTIONNAIRE put to Associate Heads of Research in each school in EASS.

On the whole this was undersubscribed by the schools and the greatest number of responses came from AAD. There seems to be some confusion around the terms and researchers feeling excluded from the field.

See appendices for responses. [JN] [APPENDX 5]

OTHER FUNDING streams to be identified other than ARC [CB]

The public funding model is so competitive now many researchers globally are looking to Philanthropic and Corporate funding sources. See attached. [APPENDIX 6]
APPENDICES
APPENDIX 1 – ABSTRACTS BOOKLET
WAYS OF SEEING:
CRITICAL, DIGITAL, SPATIAL

16 February 2018 from 8.30am-6.00pm
EASS Digital Humanities Symposium,
Bradley Forum, Hawke Building,
University of South Australia, Adelaide.

A memory garden as an alchemical representation (detail)
image: http://www.telesterion.com/artofmem.htm
accessed 28/11/2017 in Francis A. Yates,
The Art of Memory. London: Routledge 1966
Ways of Seeing: critical, digital, spatial

This symposium aims to investigate the opportunities “critical digital humanities” might offer to the fields of architecture, design and the spatial humanities. Degrees of criticality could occur around the terms themselves – for example, “digital” presents opportunities to revisit ways of “seeing” knowledge through software and computational tools – or through the design of the interfaces used for discovering, searching, as well as sustaining and disseminating information. What new research questions may be conceived through multi-modal forms of engagement with research data? How can we open up our understanding of the spatial through the application of digital tools, platforms and datasets?

Ways of seeing and representing knowledge using datasets of multi-modal forms can be seen as a knowledge building initiative. This way of seeing the world as a “direct experience of reality” is mostly a multi-sensorial response. It also prompts the “inadvertent gaze” or ineffable which involves the mind attempting to have new experiences, therefore the rational mind and the inadvertent gaze are interdependent.

The premise here is that virtual immersion presupposes another way of interrogating the research subject/object. Research questions in social sciences qualitative research come from multiple sources and...
motivations. Visual analyses/observations represent some of them. Visual observations may also translate to investigating non-tangible aspects of a particular environment and culture. The visual is therefore essential in “knowing” the subject matter and how to investigate it. How is the digitisation and dissemination of multiple knowledges impacting creative industries, cultural and research institutions and socio-cultural practices? Is digitisation offering new opportunities?

This symposium is generously funded by the School of Education, Arts and Social Sciences (EASS) at the University of South Australia.
Ways of Seeing: critical, digital, spatial

Program 16 February 2018 8.30am—6.00pm

8.30—9.00 Register (Bradley Forum, Hawke Building Level 5, UniSA City West Campus)

9.00—9.10 Welcome and introduction - Prof Denise Meredyth

9.10—9.40 keynote speaker
Dr Andrew Yip
The Ekphrasis Engine: towards a new industry architecture for digital cultural heritage research

9.40—10.00 Q+A
Chair: Dr Julie Nichols

10.00—10.30 Morning Tea

10.30—10.40 Dr Kelly Greenop
Digital modelling and the testing of architectural history theories: The Windmill Tower on Wickham Terrace, Brisbane.
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<tr>
<th>Time</th>
<th>Speaker</th>
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<tr>
<td>10.40—10.50</td>
<td>James Wilson</td>
<td>Production, limitations and possibilities of virtual reality for digital humanities</td>
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<td>10.50—11.00</td>
<td>Dr Chris Landorf</td>
<td>Digital Cultural Heritage: A summary of a meta-analysis</td>
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<td>11.00—11.40</td>
<td>Discussion: Digital Heritage</td>
<td>Chair: Assoc. Prof Christine Garnaut</td>
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<td>11.40—11.50</td>
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<td>Break</td>
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<td>11.50—12.00</td>
<td>Prof Paul Arthur</td>
<td>Flora Cultures: Conserving Tangible and Intangible Heritage</td>
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<td>12.00—12.10</td>
<td>Dr Tully Barnett</td>
<td>Digitization, Critical Infrastructure Studies and the Cultural Record</td>
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<td>12.10—12.20</td>
<td>Jenny Fewster</td>
<td>Money or Love? The long-term sustainability of the AusStage database</td>
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<td>12.20—12.30</td>
<td>Alexis Tindall</td>
<td>Shaping the tools: Empowering humanities researchers through the Virtual Laboratory</td>
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<td>12.30—1.10</td>
<td>Discussion: Infrastructure and Initiatives</td>
<td>Chair: Prof Simon Biggs</td>
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| 2.10—2.40 | **Keynote Speaker**  
Dr Rachel Hendery  
Mapping currents of change and exchange in the Pacific |
| 2.40—3.00 | Q +A  
Chair: Prof Paul Arthur |
| 3.00—3.30 | Afternoon Tea |
| 3.30—3.40 | Dr Simon Musgrave  
Mapping the relationships of concepts in text |
| 3.40—3.50 | Dr Julie Collins  
Using digital records and tools to explore social and spatial histories: the urban history of tuberculosis in South Australia at the turn of the twentieth century |
| 3.30—4.00 | Prof Ian Gwilt  
Making Data: materialising digital information for discourse and understanding |
| 4.00—4.30 | Discussion: **Visualising Data**  
Chair: Dr Tully Barnett |
| 4.30—4.40 | Summary and closing remarks - Dr Julie Nichols |
| 4.40—6.00 | Drinks (Front Bar, West Oak Hotel, Corner of Fenn Place and Hindley Street) |
Mapping of linguistic features (‘typology’, or ‘what’s where why’ (Bickel 2007)) has a long history, and has experienced increased attention in recent years with advances in digital mapping and modelling (see e.g. the World Atlas of Linguistic Structures Online (Dryer & Haspelmath 2011)) with interactive maps of grammatical features and downloadable datasets). Incorporating a time-dimension into such maps to show language change – ‘diachronic typology’, or ‘what’s where when and why’ (Hendery 2012) – is a newer and growing area of interest (e.g. Givón 2012; Fleischer et al. 2015; Evans 2016). Mapping of words rather than features, and the diffusion of words through a region, is still under-researched (Koptjevskaja-Tamm 2016:4; McConvell & Ponsonnet 2013). Mapping of cultural practices or features is likewise rare, and rarer still is the layering of these with linguistic features or terms so as to better understand relationships between language and culture.

However, in recent years I have been involved with a number of projects demonstrating how such an approach can illuminate our region’s history. In this talk I will discuss some of these, such as the AustKin project, which mapped kinship terms from Australian languages against social category systems and marriage rules to understand change in the linguistic and/or anthropological systems and how these changes reflect migration and/or contact; Glossopticon, an experiment with three-dimensionally mapping a digital language archive into Virtual Reality space; and Waves of Words, a new ARC-funded project to discover new visual analysis methods for integrating linguistic, anthropological and archaeological data from the Pacific region.
I am Associate Professor of Digital Humanities at Western Sydney University. My background is linguistics and my research mainly focuses on how new digital tools and techniques allow us to research language contact and change in new ways.

The ARC Discovery project I currently lead aims to integrate linguistic, anthropological and archaeological evidence for ancient contact relationships between Australia and the Pacific. I am also a CI on two further ARC projects led by other researchers: ‘Howitt and Fison’s Archive: Insights into Australian Aboriginal Language, Kinship and Culture’, and ‘Mapping Print; Charting Enlightenment’.

I am also a member of the MARCS Institute for Brain, Behaviour and Development, and the Centre of Excellence for Language Dynamics. I am the Treasurer for the Australasian Association of Digital Humanities and the NSW coordinator for the Australian Computational and Linguistics Olympiad.

E: R.Hendery@westernsydney.edu.au

References
Hendery, R., 2012. Relative Clauses in Time and Space: A case study in the methods of diachronic typology Amsterdam, John Benjamins
In this paper I address two crucial and immediate concerns for the field of digital cultural heritage research and the application of experimental visualisation or simulation methodologies to traditional university research practices. Firstly, through new work in the field of immersive, interactive environments being produced at the iCinema Research Centre at UNSW, I demonstrate the potential for immersive environment research to explore key concerns in the humanities, particularly in the fields of theatrical design, art history, ancient history and archaeology. Secondly, I describe the new, networked and interdisciplinary industry design principles necessary to produce these complex projects. These new workflows necessarily blend industry outputs and technical specialisations with institutional research expertise. The result is a new paradigm of research practice that must be embraced in order to pursue cutting-edge digital research in the humanities in the future.
Dr Andrew Yip is a research fellow at the iCinema Centre for Interactive Cinema Research, University of NSW. His research concerns the design and application of embodied, immersive environments for digital cultural heritage research, and new collaborative design workflows for interdisciplinary research practice. Andrew designs virtual reality exhibition installations and applications for major Australian institutions and experimental artists and he publishes broadly across contemporary new media art, museological practice and art history. E: andrew.yip@unsw.edu.au
Digital modelling and the testing of architectural history theories: The Windmill Tower on Wickham Terrace, Brisbane.
Dr Kelly Greenop, School of Architecture, University of Queensland
Jay Stocker, School of Architecture, University of Queensland

Keywords: digital cultural heritage; historic analysis; heritage interpretation; 3D laser scanning; digital modelling

The Windmill Tower on Wickham Terrace in Brisbane is the oldest building left standing in Queensland. Built in 1828, initially as a windmill, which failed in purpose due to lack of wind in Brisbane, it has undergone many adaptations and reuses over time. The Windmill Tower is now largely inaccessible to the public who maintain a frustrated fascination with one of Brisbane’s few remaining convict-built buildings, which is also the location of both the original colonial mapping and claiming of the Brisbane penal settlement, and the punishment and execution of prominent Aboriginal resistance fighters.

The Windmill Tower was scanned using both static and mobile 3D laser scanners, and visualised to enable the public to access a virtual reality version of this heritage site. Two stages of the building’s history have been modelled: the present day and the 1840s when it was an operational windmill with an additional convict-powered treadmill labour to operate the millstones within. The visualisation of the Tower in the form of a 3D digital model has enabled the recording and testing of the building’s architectural history including the working of the windmill’s 1840s mechanism, the location and configurations of the convict treadmill, and the recording of delicate aspects of the heritage significance of which are at risk of disappearing over time. This model opened a fresh debate and reassessing of historical assumptions through combining archival research with 3D laser scanning of existing spaces and modelling of historic structures that no longer exist.

Presented by Dr Kelly Greenop
Dr Kelly Greenop teaches design, architectural social science and research in the School of Architecture and conducts research within Aboriginal Environments Research Centre (AERC) and Architecture Theory Criticism History (ATCH) research centre at The University of Queensland. Her key research areas are: Aboriginal and Torres Strait Islander place experiences and attachment, and the importance of housing, place, family and country for urban Indigenous people; and digital cultural heritage using 3D laser scanning. Dr Greenop works with researchers from ATCH, CSIRO and the Queensland Parks and Wildlife Service to scan and archive fragile, remote and at-risk sites, and research the use of scanning in architectural heritage practice. She has been instrumental in gaining funding and managing the scanning of Queensland heritage sites for digital archiving onto the global digital heritage repository CyArk. Dr Greenop is co-editor of the Springer Handbook of Contemporary Indigenous Architecture, due mid-2018. Dr Greenop (with Dr Chris Landorf) co-convened two conferences in 2017 titled ‘digital cultural heritage: FUTURE VISIONS’, one in Brisbane in April and the other in London in September, the later in collaboration with the Bartlett Real Estate Institute, University College London. E: k.greenop1@uq.edu.au

Jay Stocker is a Master of Architecture student at the School of Architecture, The University of Queensland. Jay has been employed as a research assistant to develop a virtual reality model of the Windmill Tower, Wickham Terrace, Brisbane, the oldest building now standing in the city. This project follows a self-directed research project undertaken in the Master of Architecture course in which Jay scanned and visualised the Boggo Road Gaol heritage site. He developed a precise colourised point cloud mesh from a Leica P-16 scanner creating a virtual reality, immersive self-directed tour of the site. Jay has developed unique workflows to enable the use of multiple types of scan data, and the incorporation of on-site ambient noise to further increase a digital model’s immersive experience. E: jay.stocker@uqconnect.edu.au
Virtual reality technology affords the ability to represent spaces that can facilitate an emotional connection to that space. With the goal of achieving such a connection, a virtual reality ‘experience’ was produced featuring a 3D polygonal representation of traditional Acehnese architecture based on data collected from the ‘EASS Digital Humanities Project’ in mid-2017 and by using game technology and workflows.

A key objective of ‘Digital Humanities Virtual Reality’ (DH VR) project was to accurately translate not only the fundamental design of the building but also its vernacular and dilapidated qualities using sketches, photographs and video as reference material. This was a challenging prospect, especially when taking into consideration the need to balance optimisation of ‘in-game’ assets whilst ensuring there is enough detail in the environment to facilitate immersion and prompt an emotional response. Another key objective, and on a more practical level, was to find a method that enabled the user to ‘self-navigate’ the environment without the use of hardware inputs and select ‘hotspots’ that revealed another layer of data (that included images, maps and text) in the virtual space.

The artefact that resulted from this project has provided insight into the challenges, limitations and affordances of the hardware and development tools. It also has revealed the potential for this project to be developed into a virtual reality template that may be used and built upon further by other researchers in the future. In light of these key objectives and insights this talk details the mode of production, the limitations, possibilities and scope of the DH VR project.
James Wilson is a PhD candidate in the School of Communication, International Studies and Languages at the University of South Australia (UniSA). His specialisation is educational technology with a focus on utilising the affordances of game design technology and techniques to produce learning tools for the gaming generation. Having a passion for all interactive media, James recently became interested in applying practices learnt during his time as a PhD student to virtual reality. This interest has led to opportunities at UniSA including tutoring visual arts students in the creation of unique digital experiences and assisting architecture students to develop virtual visualisations of their coursework. E: james.wilson@mymail.unisa.edu
In the introduction to their landmark text Theorising Digital Cultural Heritage: A Critical Discourse, Cameron and Kenderdine (2007: 3) note that ‘...much of the discourse about the relation between cultural heritage and digital technology has been descriptive and introspective, focusing on projects and their technical considerations’. They describe an emerging field that lacks a body of sustained critical scholarship about the challenges posed by digital technologies for the meaning and practice of cultural heritage. It has been 10 years since these observations and 15 years since UNESCO adopted the Charter on the Preservation of Digital Heritage that acknowledges digital technologies as an effective means to record the world’s heritage and broaden access to historic resources.

This presentation will provide a summary of a cross-disciplinary thematic investigation into a decade of scientific development, methodological advancement and critical discourse on the relationship between digital technologies and cultural heritage. The investigation used a systematic review across four academic journal databases for relevant peer reviewed articles: JSTOR, ProQuest, Science Direct and Social Science and Humanities Index. Articles were selected based on a keyword search (Shaw et al. 2004), rated against quality criteria (Atkins et al. 2008) synthesised into generic descriptive themes before being further interpreted to yield analytical themes relevant to the meta-analysis (Loulanski and Loulanski 2011; Thomas and Harden 2008). The investigation establishes the factors regarded as critical to the field and tests the development of a foundational body of critical scholarship.
Dr Chris Landorf teaches architectural technology, practice and heritage management in the School of Architecture, and conducts research within the Architecture Theory Criticism History (ATCH) research centre at The University of Queensland. She is a registered architect with postgraduate qualifications in business administration, facility management and the sustainable management of industrial heritage sites. Her key research areas are: sustainability and the built environment, specifically in relation to the management of complex historic industrial and urban environments; and the communication of information from multiple sources through virtual environments and digital platforms. Since 2014, she has been instrumental in gaining $485,000 in university and nationally competitive funding to develop a 4-dimensional learning environment that immerses students in real construction projects captured digitally over time. E: c.landorf@uq.edu.au
FloraCultures: Conserving Tangible and Intangible Heritage
Prof Paul Arthur, Chair in Digital Humanities and Social Sciences, School of Arts and Humanities, Edith Cowan University

Keywords: heritage protection; biodiversity; memory studies; cultural identity

Botanist Stephen Hopper claims that “Perth is one of the world’s most biodiverse cities, especially in relation to plants [...] The rate of discovery of new plants here ... is equivalent to the rate of discovery in many of the rainforests” (cited in Perth Biodiversity Project, p. 1). In protecting biodiversity, cities also gain opportunities to conserve diverse forms of cultural heritage associated with plants. This heritage involves plants as food, ornamentation, medicine, and fibre; as literary, artistic and historical objects; and as sources of community memory, cultural identity, and personal well-being. The FloraCultures project develops theoretical and practical approaches to conserving botanical heritage in Western Australia by applying concepts of tangible and intangible heritage to plant conservation. Intangible heritage suggests the “forms of cultural heritage that lack physical manifestation. It also evokes that which is untouchable, such as knowledge, memories and feelings” (Stefano, Davis, and Corsane, 2012, p. 1). The 2003 UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage articulates five manifestations of intangible heritage, including “oral traditions and expressions [...] social practices, rituals and festive events [...] knowledge and practices concerning nature” (p. 2). Drawing on current developments in heritage protection, memory studies, and digital design, this paper presents an overview of the project’s model for conserving Perth’s botanical heritage. The premise behind FloraCultures is that digital humanities approaches can render cultural information about Perth’s plants accessible. The project consolidates materials dispersed widely across numerous traditions and sources, including Whadjuck Nyoongar (the Indigenous people of Perth) and colonial European expressions of knowledge and attachment to plants.

Presented by Prof Paul Arthur
Prof. Paul Arthur is Director of the Centre for Global Issues, and Chair in Digital Humanities and Social Sciences at Edith Cowan University. Dr John Ryan is Postdoctoral Research Fellow in the School of Arts at University of New England. He initiated the Flora Cultures project at ECU and his current postdoctoral research is on “The Botanical Imagination: Poetry as a Means for Inspiring Ecological Appreciation and Community Wellbeing.” Heather Boyd is eResearch Coordinator at Edith Cowan University. E: paul.arthur@ecu.edu.au

References
The future of cultural and text preservation is almost entirely digital and yet the approach we take as a nation and as disciplines in the (broader) Humanities has so far been piecemeal, short-term, funding-driven and blinkered. The federal government’s 2017 Infrastructure Roadmap policy process has ensured space for the discussion of Humanities infrastructure in the national debate but this needs to be underpinned by more diverse research from the sector. Deb Verhoeven argues that “cultural infrastructure is not a passive conduit; it catalyses for better or worse. It is a technology that holds a social promise, not just a technical one” (Verhoeven 2016). The emerging field of critical digital infrastructure studies or critical humanities infrastructure studies (Smithies 2017; Liu 2016; Drucker and Svensson 2016) raises questions about the foundations underpinning knowledge production processes in humanities and cultural research and offers a way of thinking about how these different cultural infrastructure projects work together to build something for which we are as yet underprepared to analyse.

In this paper I use critical infrastructure studies as a way of talking about these often invisible elements of digital design and dissemination within which the cultural record is contained. I outline a rational for a nuanced understanding of the history, impact and non-economic value of cultural digitization projects in and relating to Australia, as well as internationally and call for better research into digitization as a cultural strategy.
Dr Tully Barnett is a Lecturer in English in the College of Humanities, Arts and Social Sciences at Flinders University and Research Fellow with the ARC Linkage Project Laboratory Adelaide: The Value of Culture. Amongst other things, she publishes across cultural policy, digital humanities, and reading as a practice in and out of the tertiary classroom. She is the author of “The Kindle's Social Highlighting Function and Emerging Reading Practices” (2014) and “Platforms for Social Reading: Material Imagery in Digital Book Formats” (2015). She serves on the boards of the Australasian Association of Digital Humanities and the Australasian Consortium of Humanities Research Centres. E: tully.barnett@flinders.edu.au
Money or Love? The long-term sustainability of the AusStage database
Julian Meyrick, Strategic Professor of Creative Arts and Jenny Fewster, Manager: AusStage Database, College of Humanities, Arts & Social Sciences, Flinders University

Keywords: funding models; open access; databases

In 2016, after AusStage was successful in its Phase 6 LIEF application, a decision was made by its leadership to approach non-ARC sources of funding, in order to put the database on a more sustainable financial footing. In 2017, a Pledge Drive commenced, focused on Australian university libraries and the State Government of South Australia. To date, nearly $90,000 has been raised, spread over the coming triennium. Of more interest, however, is the debate around the Pledge to identify and communicate “the AusStage story”. What emerged from this process was not a brand but a commitment – to a national resource, freely available to all Australians, which imperfectly but uniquely captures this nation’s performing arts activities. The aim of the Pledge Drive was to raise money. An important result of it, however, was clarification of AusStage’s underlying mission and values.

Presented by Jenny Fewster
Julian Meyrick Ph.D (2000 La Trobe) is Professor of Creative Arts at Flinders University, Artistic Counsel for the State Theatre Company of South Australia (STCSA), and a member of both the Council for the Humanities and Social Science (CHASS) board, and the Currency House editorial committee. He was Associate Director and Literary Advisor at Melbourne Theatre Company (MTC) 2002-07 and Artistic Director of kickhouse theatre 1989-98. He is the author of See How it Runs, a history of Sydney’s Nimrod Theatre company, and numerous articles on Australian theatre and cultural policy in Griffith Review, Australasian Drama Studies, Theatre Research International, Australian Studies, Contemporary Theatre Review, Text, Pacific Journal of Arts and Cultural Management, Cultural Trends and Journal of Arts Management, Law and Society. He is Chief Investigator for both the AusStage performing arts database and Laboratory Adelaide, a multi-disciplinary research project studying the problem of culture’s value. The Retreat of Our National Drama, his second Currency House monograph was published in 2014. He is the director of over forty award-winning theatre productions, including Angela’s Kitchen, which he co-wrote, and which attracted the national Helpmann Award for Best Australian Work in 2012. He was a founder member and Deputy Chair of PlayWriting Australia 2004-09 and a member of the federal government’s Creative Australia Advisory Group 2008-10. A notable developer of new stage drama, he has led the debate about the establishment of a national theatre in Australia. E: julian.meyrick@flinders.edu.au

Jenny Fewster began working on performing arts databases in the early 90’s in her role as Research Assistant at the Performing Arts Collection of South Australia. She joined AusStage, the Australian national online resource for live performance research, when the project began in 2000 and was appointed Project Manager in 2003. During her time with AusStage the project has been successful in gaining over $5 million (AUD) in funding from the Australian Research Council, Australian National Data Service, National eResearch Architecture Taskforce, eResearch South Australia and the Australian Access Federation. Jenny is active in nurturing relationships between university researchers and cultural collections. She is currently the Deputy Chair and Secretary of the Performing Arts Heritage Network of Museums Australia and has served on that Committee for the last ten years. E: jenny.fewster@flinders.edu.au
In the research environment described by the Ways of seeing: critical, digital, spatial organisers, a world of opportunity opens ahead of us. Increasing availability of humanities data, digitised cultural heritage collections, shared research outputs, and tools that are becoming more accessible mean that humanities research is going through a period of transformative change.

It is important to empower the current and future generations of humanities researchers to operate optimally in this environment. The diversity of sources and motivations in qualitative social sciences research assert the importance of open and accessible tools, and ensuring researchers understand how they work. Digital technologies provide us with the opportunity to record, preserve and share non-tangible aspects of environment and culture, so we must use these tools effectively and preserve their outputs responsibly, thinking about future use. Large scale digitisation is offering new opportunities, an explosion of data is emerging, so researchers need to be ready to use it.

eRSA are leading the ANDS/Nectar/RDS funded Humanities Arts and Social Sciences Data Enhanced Virtual Laboratory (HASS DEVL), an initiative that aims to accelerate research in the humanities through improved and accessible tools, increased interoperability between data and platforms, shared workflows, best practice in data curation, and empowering the community through training and skills building. This presentation will outline the 2018 goals of the HASS DEVL, drawing on the background that informed this project, and our vision beyond this project.
Alexis is part of eRSA’s Research Engagement team, working with humanities and social sciences researchers to help them access data storage and compute facilities through eRSA. In this role she works on eRSA-led federally funded initiatives to advance digital humanities research.

Alexis has a postgraduate qualification in Museum Studies and extensive project management experience in a variety of environments. Between 2010 and 2016 she led the South Australian Museum’s volunteer digitisation program, making data and multimedia from the museum’s collection accessible online and has worked for the Atlas of Living Australia, improving digital access to the nation’s natural history collections. E: alexis.tindall@ersa.edu.au
Mapping the relationships of concepts in text
Dr Simon Musgrave and Brian Zuccala, School of Languages, Literatures, Cultures and Linguistics, Monash University

Keywords: mapping, text analysis, distributional semantics

Distributional semantics assumes that patterns of co-occurrence of words in texts can tell us something about the meanings of words, but the relations between all the words in a substantial body of text are not accessible to traditional corpus methods such as n-grams and collocation analysis. Recently developed algorithms allow us to build models which locate every word in a corpus in relation to every other word in a multi-dimensional space – Vector Space Models. Such models can then be used as the basis for various two- and three-dimensional visualisations which can show relationships between words and concepts in texts.

Our presentation will briefly introduce the basics of the methodology used and will demonstrate the value of the techniques by comparing the visualisation of key concepts in the texts of the Italian ‘canonical’ author Giovanni Verga, with similar visualisations for two other writers generally considered to be influenced by Verga (Luigi Capuana and Federico De Roberto). Giovanni Verga is one of a few to be studied and translated in the Anglosphere as well. We discuss the ways in which these new techniques support and extend views based on traditional scholarship about the differences and similarities of this group of writers.

Presented by Dr Simon Musgrave
Simon Musgrave is a lecturer in linguistics at Monash University who locates much of his work in recent years in the field of Digital Humanities continuing a longstanding interest in the use of computational tools for linguistic research. This interest has been focused recently on the use of Vector Space Models for semantic analysis, including collaborating in textual analysis with scholars in other disciplines. Other current research projects include developing combinatorial search strategies for corpus-based study of pragmatic phenomena and exploiting the affordances of online presentation to make grammatical description more accessible. E: simon.musgrave@monash.edu

Brian Zuccala holds a MA in Modern Literatures and is completing his Ph.D in Literary and Cultural Studies (Italian) at Monash University, where he teaches language and culture. He has co-edited a collection of essays on Pascoli, Il seme di Urbino (Raffaelli, 2013) with Salvatore Ritrovato. Parts of his recent work appeared or are in press as essays, critical introductions, interviews, translations and reviews in Italian Studies in Southern Africa (ISSA), Spunti e Ricerche, Italica, LEA-Lingue e Letterature D'Oriente e Occidente, The Journal of Italian Cinema and Media Studies, Intralinea Online Journal of Translation and the Journal of Italian Translation. He is editing a forthcoming volume of collected essays on new approaches to Capuana Studies – Experimental Fiction and Cultural Mediation in Post-Unification Italy: The Case of Luigi Capuana – with Annamaria Pagliaro as well as the ISSA 2018 special issues (31.1 and 31.2) on Italian Postcolonialisms with Anita Virga, and is working on a translated volume of George Gissing's Racconti Americani with Luigi Gussago and John Gatt Rutter, under contract with Nova Delphi (Rome). Some of his Digital Humanities-related work (with Simon Musgrave) is available through Monash Figshare Repository (www.figshare.com). E: brian.zuccala@monash.edu
Using digital records and tools to explore social and spatial histories: the urban history of tuberculosis in South Australia at the turn of the twentieth century

Dr Julie Collins, Collections Manager: Architecture Museum, School of Art Architecture and Design, University of South Australia
Peter Lekkas, Centre for Population Health Research, School of Health Sciences, University of South Australia

Keywords: urban history, social history, health, digital mapping, historical geography

This presentation will outline interdisciplinary research-in-progress in the digital humanities which builds on previous qualitative architectural history concerning the urban, social and cultural history of tuberculosis – research which led to many questions, particularly in reference to those who died from tuberculosis: who were they, what were their social and residential circumstances, and were these social residential geographies consequential in any way to eventual outcomes?

In 1680 pulmonary tuberculosis was described by writer John Bunyan as “The Captain of all these men of death” and by the nineteenth century had become a global scourge. So much so, that by the turn of the twentieth century, and with an increased understanding of its contagious nature, it was declared a notifiable disease in South Australia. As such, records have been left from which we have been able to spatially trace the mortality of those who died from tuberculosis.

Specifically, this talk will discuss pertinent digital methods and demonstrate how primary data can be collected and collated from historical records, both paper-based and digital collections. We will illustrate how the locations of deaths can be historically spatially re-emplaced and augmented with historic records relating to social conditions and housing. Spatial analytical techniques being used to explore associations between the geographic distribution of deaths across metropolitan Adelaide and the socio-demographic and socio-economic geographies of the time will be touched upon.
Julie Collins and Peter Lekkas have worked together over several years combining their interests in health and place, and the historical design of institutional settings intended for therapy. Dr Julie Collins is Researcher and Museum Curator at the Architecture Museum, within the School of Art, Architecture and Design at the University of South Australia. Julie researches and publishes on various aspects of architectural, cultural and social history as well as in the field of archival theory. Peter Lekkas is a researcher and doctoral candidate within the School of Health Sciences, University of South Australia with a background in epidemiology, population health and Geographic Information Systems.
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Making Data: materialising digital information for discourse and understanding
Prof Ian Gwilt, Research Professor: Design, School of Art, Architecture and Design, University of South Australia

Keywords: digital fabrication, data visualisation, data-objects

This paper will introduce methods, processes and theories around the translation of digital data into material forms, and proposes that the making of data into physical objects and located experiences will be an important development in the data visualisation phenomenon. For many outside of the scientific community digital data and the conventional forms this takes, such as statistical lists and graphs, remain abstract and unintelligible. The paper investigates how this emergent approach to the creation of data-objects can help to engage, and aid understanding of digital information by a variety of different stakeholders and community users.

As new types of digitally enabled printing and fabrication technologies become more accessible, these technologies are being employed by artists, designers and scientists to create new and novel ways of representing data that move beyond the digital domain. These practices are contingent on the relationship between digital and material cultures and necessitate a dialogue between these two domains, which are increasingly being drawn together in hybrid configurations. The concept of the data-object further challenges this separation and the ontology of digital content. The paper discusses a selection of practices and research activities that explore the translation of digital information sources into material forms and discusses the sociocultural implications inherent in doing so.

Presented by Prof Ian Gwilt
Ian Gwilt is Professor of Design in the School of Art, Architecture and Design and Research Lead in Match Studio at UniSA. Current areas of research include communication design and knowledge mobilisation, design in the healthcare environment, data visualization and the design of hybrid environments from museum experiences to human-robotic interactions. He is also interested in how we can incorporate visual communication design practices into interdisciplinary research teams and in better defining design research practices.

He has a PhD from the University of New South Wales, Sydney, Australia, which examines the theory and practice of mixed-reality in creative contexts, an MA in Interactive Multimedia (MAIMM), jointly conferred by the University of Balears (UIB), Spain and the Royal College of Art (RCA) London and an undergraduate degree in Visual Communication (Design for Learning) from Manchester Metropolitan University. He works across a number of media often combining analogue and digital forms including digitally enabled fabrication processes such as Rapid Prototyping and 3 dimensional data-objects. He has been making and writing about digital media since the mid-1990s and has exhibited at a number of international events and galleries.

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Notes
WAYS OF SEEING: EXHIBITION

16 February 2018 from 8.30am-6pm
Bradley Forum, Hawke Building,
University of South Australia, Adelaide.

Featuring works by Russell Fewster, Belinda McGill, Tim McGinley,
Dan Mclean, Ning Gu, Peter Walker and Chris Burns

Abstracted vernacular space (detail)
James Wilson UniSA DH Project 2017
The **Australasian Association for Digital Humanities** ([https://aa-dh.org/](https://aa-dh.org/)) is pleased to announce its fourth conference, to be held at the University of South Australia from 2 to 5 October 2018.

The conference will focus on ‘Making Connections’ – between disciplines, sectors, countries, ways of thinking, people and ideas – and applying data and digital tools to connect people and possibilities.
Vernacular as a [theoretical concept] “way of seeing”

This paper investigates the concept of “the vernacular” as a way of seeing. This mode of learning or understanding the vernacular will demonstrate it is concept which involves more than just sight and vision. It is understood here as a mode of engagement and a type of knowing brought about through observational drawing, representation and re-conceptualising, for the purpose of re-visiting “the vernacular” as a field of knowledge in contemporary discourse. Other scholars such as Marcus Vellinga & Lindsay Asquith (2006), Nezar AlSayyad (2013), Paul Oliver (1997), Mark Crinson, Hasan Fathy (1986), Dell Upton (1986), Amos Rapoport (1980) to name some of the key figures, have drawn our attention to the need for more expansive thinking around the field. This study contributes to these debates in addition to adopting a specific lens of analysis through drawing and representation to re-present the vernacular. The drawing subjects are “everyday architecture”—typically houses of families from rural communities that are considered built cultural heritage at risk of destruction. The drawings of humble and beautiful Acehnese houses represent a medium through which the rich narratives of the community may be seen, heard or read. In a sense it is an architectural anthropological process for the researcher, of revelation in doing and observing through drawing. It entails transcribing many aspects of the seen, but in so doing expands the notion of seeing into some of the following activities—perceiving, viewing, discerning, interpreting, visualising, mentally constructing, recognising, imagining, learning or having knowledge of, attending to or taking care of, to prefer, to understand, to think or deliberate, or to interpret through a deeper knowing. In this paper the focus is in three main areas: conceptualising the seen/scene (re-thinking the vernacular); reading the seen/scene (materiality, construction and context); imagining the seen/scene (cosmological and spiritual) for the Acehnese house all of which are complimented and motivated by the act of drawing itself. These forms of interaction with the vernacular are necessary to appreciate the depth of the concept as a mechanism through which we may gather insight for future development of these typologies, using methods such as refurbishment, reconstruction and re-invention.
These ideas pertaining to the vernacular and its resonance for contemporary and future lived environments are discussed around some observational drawing and measuring field work undertaken in Lambunot Village, Indrapuri, Aceh Besar, Indonesia in the recording of streetscapes and individual dwellings. The project work was the result of efforts an international team of Thais, Australians, Finnish and Indonesian architects, academics and students of architecture employing mixed methods of VERNADOC (acronym for vernacular documentation) or manual measuring and drawing or what we refer to as architectural ethnography; digital recording through photogrammetry and drone mappings; as well as interviews and video capture of the site, its people, and the architectural ethnographers interacting with the local peoples. The final stages of this process for the local community and the transcribers involves an exhibition of the works locally and then in the hometowns of the main contributors to the project. The exhibition and community engagement after the completion of the drawings, is central to adding another level of the “seeing” as it is an event where the community observes others “reading” their lived environments.

What are the limitations of these recording methods? What does it tell us about “the vernacular” and how is it useful for the community and therefore important to record? How does the process give or highlight value to the community and their dwelling spaces? These questions are central to an appreciation that the vernacular is dynamic; the result of intertwined influences from religious and political pasts, it is a process of continuation, evolution, adaptation and records only represent a moment in time of its becoming. However, in its capture through the manual drawing, digital and aural representations there are valuable lessons and hints of inspiration beyond the moments of analogue of digital capture, but in some cases revealing an encyclopedic depth of knowledge to these humble building types. It offers participant communities another way of seeing their lived spaces typically to which they have not been exposed previously, whilst in turn highlighting a value in its significance to its owners as well as outsiders they had formerly not understood; to the ethnographers it enables insight into seen and unseen conditions of the community’s everyday existence and invites a reconnection with meanings of past knowledge systems which lead to its design. In the vernacular
knowledges of Aceh it is hypothesized, lie particular insight into past methodologies around the challenges of natural disasters that continue to threaten seaside and hinterland communities. The intention of this research inquiry, is to reconsider urban designed environments and housing typologies for contemporary and future Acehnese developments in the context of beneficial and perhaps lost vernacular knowledge. In a re-thinking as well as re-visiting ways of knowing the vernacular in Aceh’s early history as well as most recent past, through modes of representation and literature analyses, it is hoped that this insight may inform future development strategies.

**Problematic nature of the term “vernacular”**

The term itself and what it means for the study of built environments is widely debated. The emergence of the concept has been somewhat contested beginnings for example according to Mark Crinson, professor in history and theories of architecture, to identify vernacular architecture he believes the process may be considered as a “performative act; it exists because we talk about it, because of our nomination of its objects, our creation of its discursive spaces.”¹ Crinson goes on to suggest that by mentioning the vernacular it sets up oppositions and a power imbalance occurs through terms such as “high and low, raw and cooked, crafted and industrial, designed and customary” due to the perceived “disparity of status between them, the subordination of one to the other,” the terminology infers something inferior to the modern.² Nezar Al Sayyad, architectural historian and founder of the IASTE the organisation which leads the debate on tradition in architectural discourse particularly in North America, suggests there are great limitations of etymological and epistemological proportions of the concept.³

Etymologically, for example, for the object/building/art to be considered as vernacular it must be ‘native’ or local to a place and produced with locally provided/grown materials and processes, and possibly by the individual owner. However, the 21st century means things are less tied to a place, culture and tradition, as sometimes origins of built components may have been produced as part of
more information-based systems, processes and technologies…therefore previously understood aspects of the vernacular need to be rethought to reflect these changes.⁴

Epistemologically vernacular and modern knowledge are not in opposition although they have been seen as such, it is due to our ways of classifying and knowing the meaning of vernacular in the built environment. Al Sayyad believes the concept of “vernacular knowledge” should be abandoned and substituted with an understanding that instead the vernacular “may be in fact be the most modern of the modern.”⁵ Yi Fu Tuan, historical geographer, according to AlSayyad has argued “that tradition is often the absence of choice” ⁶ therefore there is a degree of constraint in practices of the vernacular and gradual change may occur but they are in response to geographic or economic limitations not aesthetic or conservative practices…but rather something that cannot be overcome.

Paul Oliver, vernacular specialist architectural historian,

“argued that there is no such thing as a traditional building but rather buildings that embody certain vernacular traditions. He urged us to focus our attention on the practice of transmission as a way of understanding the vernacular and maintaining it….the only difference , perhaps, is that the practice of transmission have changed considerably in an era of technological advancement and increased communication. We should no longer assume that vernacular builders are unskilled, illiterate, technologically ignorant or isolated from the world of global communication.”⁷

In addition, Paul Oliver states, “[w]e should not be left with the concept that everything is vernacular yet nothing is vernacular anymore.” He believes the requirement for authenticity, or a static concept, or as the source of specific cultural meaning, this conception of the vernacular is not current. Instead it is more useful to consider the vernacular as a dynamic and intertwined “political project,” which has the role of interpreting past ideas to accommodate current and future ways of living.⁸ Yet this approach then raises the question of what will “vernacular architecture” look like or will everything be identified as vernacular in the 21st century?⁹
Vernacular has its origins as a 19th c concept

There are obvious limitations of retrofitting a modern concept into historical contexts and Crinson explains how on the whole conceptions of vernacular such as traditional, local wisdom on so on are also limiting and we should think of the vernacular in other ways

“re-conceiving the vernacular as a discursive terrain in which different kinds of claim on the concept are connected, and exploring what this adds to our understanding of the built environment as a field of practices—sometimes parallel, sometimes interlinked, sometimes conflicted—within the totality of the production of space.”

In other words, a commentary on how buildings relate to the larger context of global buildings in the ways they are produced or the materials they employ, or how they reflect practices which connect them more broadly to modernism through the use of mechanical means for their production. They may be constructed of stone and timber but have these raw materials honed by mechanical tools to produce a particular finish, this is outside the conventional understandings of hand-crafted etc. these modifications may mean the building fits within modernist styles? The vernacular in this context mentioned above is temporally and spatially an expanded idea, whereby

“a set of architectures and situations that inter-relate unevenly in a highly differentiated discourse across the production of space. Different positions on the vernacular can be understood as dialectically interconnected, most especially when they are polarised or contradictory, even when they are silent on the word itself.”

There is a sense that the modern may be located in the vernacular rather than in high architectural forms (Yael Allweil), vernacular as a form of active resistance (Ayala Levin), reconsidering whether vernacular embodies the traditional and the authentic (Amanda Achmadi)…. “the vernacular has a great critical life when we focus on its historical and ideological formation.” It is this aspect of inquiry which invites looking to the past which includes the immediate past, that is yesterday, as well
as earlier, to interrogate and record vernacular methods and ideas behind building and design to recall knowledges and meanings which may have been overlooked.

Although vernacular architecture is a nineteenth century invention”, it has continued to be considered by global institutions a category of scholarship worthy of continued enquiry and as a result sustains a presence in coursework and research programmes in the academy into the 21st century.14

Ways of seeing Aceh’s vernacular

Ways of seeing the world are mediated through religious and belief systems, as well as through socio-cultural practices, often originating from the former frameworks. A society of art, architecture and culture that has sustained multiple influences over its development such as that of Aceh provides a fascinating case to follow and learn the roles of Animism, cosmological beliefs, Buddhist and Hindu practices, differences within Islamic thinking, as well as exposure to Christianity from Dutch colonisation. How these ideas revealed themselves in the built environment and specifically in the everyday architecture—vernacular structures—remains a source of intrigue and the purpose of this enquiry. In contemporary Aceh, on occasions, this narrative appears to be, either blurred, forgotten or mythologised? Perhaps ambiguities lie in modes of seeing the past when it is coloured by the aspirations of the future? However, most significantly, the Acehnese have been subjected to catastrophic interruptions of memory between 13th to 21st centuries, when sustaining losses of built environments, familial generations, cultural artefacts and archives, as well as their scholars of history, through natural disasters and wars. These events as mechanisms for forgetting are prevalent in other societies, so what is notable about the Acehnese situation?

More recently, Aceh suffered, as did other coastal parts of Southeast Asia, from the insurmountable force of the 2004 tsunami, which destroyed immense tracts of land containing built and natural environments, as well as subjecting the community to the terror associated with losing generations of family members comprising more than ten per cent of the population. The profound effects of these
traumatic experiences in most recent history have resulted in much research around future tsunami mitigation measures, in fields of research ranging from scientific endeavours to do with predictability to large-scale engineering responses at protection. The historical approach, has been of lesser significance to these investigations, yet it upon preliminary investigations it reveals tsunamis were very much known phenomena of Aceh’s past and yet as they were infrequent, often centuries of time extending between these extreme events the transferrable knowledge and details were limited. As one example, it appears the seventeenth century sultanate was sited strategically around the known “safe” zone from the sea. These valuable types of vernacular knowledges appear to have been forgotten, so therefore by looking historically at other periods in Aceh’s history, is it possible to discern further insight into tsunami mitigation measures whilst establishing a chronology of development of their built form to uncover its other influences? For example, did the Aceh house typology develop to cater for elephant stampedes through its undercroft or from cosmological associations with ascendency to god? To what extent was its evolution a culmination of these factors? How might the vernacular knowledge of its design assist with transferrable insight for future Acehnese development and strategies around tsunami mitigation or just simply improving the everyday living standards and environments for the community?

In practice, religious and socio-cultural differences between Buddhists, Hindus and Muslims in contemporary Indonesian society have motivated volatility in various degrees since the nineteenth century under Dutch administration. Prior to Dutch occupation, resistance from the multi-religious groups in Indonesia was predominantly directed at the Dutch and Portuguese Christians in protection of their territories, trading resources and trade routes. Notably colonial invasion, resulting in occupation, capitalised and emphasised difference between these comparatively tolerant religious peoples to finally fracture allegiances. This was of course not an uncommon tactical move in conquest, to create dissension amongst the occupied peoples, so they will look to the new order for unity, stability and peace.
Notably therefore, using the lens of vernacular knowledge and built environments, the transitional periods, 13th, 15th, 17th centuries in Indonesian history where shifts in religious thinking and power relations whereby tolerance and resilience was demonstrated. With the arrival of Islam to Aceh (whilst under the Majapahit Hindu rule), over a period of hundreds of years, by the fifteenth century it was seen as the Gateway to Mecca for pilgrims in and to Southeast Asia. Scholars to Aceh embraced religious teachings before travelling to the Holy Land. With the arrival of Islam to Aceh (whilst under the Majapahit Hindu rule), over a period of hundreds of years, by the fifteenth century it was seen as the Gateway to Mecca for pilgrims in and to Southeast Asia. Scholars to Aceh embraced religious teachings before travelling to the Holy Land. Prior to this period, there is archaeological evidence of religious built structures from Buddhist (Sriwijaya period), Hindus (Majapahit period) and animistic practices. These origins continued to influence architecture and cultural rituals in the seventeenth century under Sultan Iskandar Muda’s court, where religious leaders such as Hamzah Fansuri engaged in what was described as “pantheistic mystical Islam.” According to Dutch scholar, Snouck Hurgronje, in his two volume study “The Acehnese,” the influence of Sufism waned and prospered up until the twentieth century, and one of the major tenets of Sufism is the belief in the unity of existence. Al-Attas highlights in this belief system, how Allah is metaphorically likened to the ocean whereas man is considered at the scale of a wave and when man and Allah are united the ecstatic experience occurs as ‘wajid.’ Similarly in Sufi doctrine relations between Allah and the Universe are metaphorically considered as a mirror and its reflection. These are some of the early documented connections between the sea as a physical and tangible ‘seen’ entity catering for trade and the global interactions with religious scholars as well as through spiritual teachings and the non-tangible or ‘unseen’ metaphorical connections through belief systems.

Muslims from China, India and the Middle East frequented the growing port settlements throughout the Indonesian archipelago and were the strongholds for Muslim traders. The full effects of this international trading network did not threaten Majapahit rule until the rise of Melaka and a Muslim Sultan in the 15th century. Despite the shifting power relations, religious forbearance was demonstrated through the retention and adaption of built environments to accommodate Hindus and Muslims.
However, by the late 19th century, this tolerance was waning across Indonesia and Muslim religious architecture particularly in northern Sumatra was influenced by styles and forms of Middle Eastern buildings. Vernacular architecture also began to embrace different materials and styles as alternative technologies became available locally through import markets. Interestingly, a type of orchestrated memory loss also accompanied this shift in thinking and identity toward Middle Eastern Islam unprecedented in Indonesia. Associations of vernacular architecture with any pre-Islamic thinking appeared to be thrown into question. This positioning to some extent has been perpetuated into contemporary discourse and informed identity construction for modern Indonesia. Historical emphasis and recall through built form analyses focusses on 17th century understandings of the greatness of the Islamic empire under Sultan Iskandar Muda, and Aceh as the centre of Islamic scholarship and culture at that time.

The early diversity and liberality extended by some Islamic leaders in the region through the commissioning of their built forms, demonstrating and acknowledging Buddhist-Hindu roots. It highlights the role of colonial intervention in emphasizing religious difference and segregating communities along racial or religious lines has facilitated a skewing of historical memory. Denying local people of historical memory of their lived environment, and proud association with vernacular knowledge which prompted their house designs and village arrangement related to their ancestral roots, creates a disempowerment and disconnection. When archival, physical or human evidence of these roots are destroyed through events of natural disaster, a physical and mental trauma of forgetting exacerbates the disconnection.

**Conceptualising the seen/scene (re-thinking the vernacular);**

In critiquing the vernacular, the process offers new perspectives and insight into what the concept of the vernacular has enabled. Perhaps instead it also offers more questions, such as the role and value of what constitutes vernacular in contemporary times? If things are done in a modern way but as part of
the continuum of the production of the built environment does this still constitute the vernacular and how are Acehnese built environments represented in this debate? Therefore, the conception of the term perhaps reflected intentions to isolate cultural influences and coin them as “vernacular” as been mentioned above in opposition to the modern? However, it is also important to remember there is rarely a condition of a pure cultural context. In Aceh, from its pre-Islamic history to today’s community, there has always been a rich melting pot of cultures meeting, interacting and residing in maritime and land-based activities. The concern of geography and context relating to a particular vernacular tradition or style also is thrown into question when peoples such as the Acehnese have always prospered from inter-connected seafaring practices. Trade ensured even from the earliest times, access to imported goods, knowledge and different ways of thinking about one’s place in the world, effectively translating to dynamic concepts of identity, or multiple identities. Unlike some hinterland jungle-based communities more insulated from global contact due to geographical conditions, the notion of historical location in a place of a vernacular knowledge for the Acehnese is ambiguous.

Therefore, Kenneth Hall’s position of advocating the vernacular as an intertwined history and representative of continually evolving and shifting sets of relations opens up the concept to respond to with new cultural and ecological factors. In particular, the issue of materiality due to altered resource availability in the 21st century, requires further rethinking. For example, notions that materials of vernacular buildings are always related to geographic location are slightly problematic and more complicated than might be imagined. In the Lambunot community, the site of our field work, villagers would use timber grown locally to repair their houses due to economic realities—not having any surplus income to purchase timber at all whether it was locally grown or imported timber. This was not necessarily the case always, some houses had been deconstructed and removed from other villages to be relocated to Lambunot, as such the timber for their base structures was unavailable in Lambunot. House owners would use what species were available to them and accept a softwood species, inevitably not durable to the conditions but would suffice for the interim, in the absence of any other
choice. Therefore, in documenting the vernacular how does one decide what represents the vernacular of Lambunot, and by implication, who decides what is worth recording?

**Reading the seen/scene (materiality, construction and context);**

The act of “reading” of interpreting the information presented in drawing, in the first instance logically relates to the expertise of the observer. If it is an orthographic projection of a building, have they been trained to understand this view and how it relates to the three-dimensional ‘real’ version? Or perhaps the observer is the vernacular builder and does not necessarily understand the drawing projection but from first-hand knowledge of materials and construction can interpret the drawing.

VERNADOC, an acronym for vernacular documentation includes in the process other identifiable attributes to the space which are not related to structure or materiality. Theses elements inhabit the socio-cultural spaces exhibited on the page. From my own observations witnessing the community studying and engaging with the details of their houses drawn and exhibited at the Tsunami Museum in Banda Aceh, the reactions relate often to the personal possessions that have been captured and represented in their houses.

**‘Seen’ Conditions**

Anthropologist James Fox explains that a house in Indonesian culture is understood as a structure which will endure beyond the life span of one individual. Consequently, there is a certain expectation of permanency around its creation, which may suggest on one hand a static existence. On the other hand, the structural system, of traditional Acehnese houses are designed to be assembled and disassembled to facilitate change of ownership and movement to alternative sites. Therefore, this flexibility of siting, endurance of the materials as well as method of construction catering for tying and interlocking of the structural members provides a different understanding of settlement and connection to place and challenges many of the assumptions of “vernacular”. At the same time the
central post of the house plays a crucial role as the navel of the house and the marker of ancestral memory."^{19}

The responsiveness of the Acehnese house to factors such as local materials as well as different ecological conditions affecting availability of supplies together with other considerations such as social realignment, security reasons, and dynamic socio-cultural conditions all play a role in the transformative nature of new and divergent constructions.\textsuperscript{20} The following discussion highlights hypothesised vernacular evolution between Aceh house typologies and its transformative nature of the stage-house (\textit{Rumah Tiang Seribu}) possibly to environmental and socio-cultural stimuli. It also notes how the boat-house (\textit{Rumah Rakit}) was the early precedent to the stage-house and the former may be seen as a response to the physical environment. The response to the environment in Acehnese traditional architecture therefore operates at a number different levels from the aesthetic (visual perception) through to the functional (to climatic and socio-cultural requirements). This delicate balance between engagement in, and attachment to the natural world’s aesthetic and climatic or ‘seen’ conditions in Acehnese houses is explained further below, around specific architectural responses.

Figure 1(L): Boat house \textit{Rumah Rakit} \hspace{1cm} Figure 2 (R): Stage house \textit{Rumah Tiang Seribu}

Source: Kamal A. Arif, \textit{Ragam Citra Kota Banda Aceh},

\textbf{Waterfront settlement}
The river was often the main transportation between city centres and the estuary, a source of food and livelihoods for the fishermen. Cities along the Malacca Strait such as Malacca, Penang, Johor, Temasek (later known as Singapore), Banda Aceh, Lhokseumawe, Tanjung Balai, and others all began as riverbank settlements. According to Kamal Arif, these peoples of the riverbank towns lived in two types of houses. The first typology, the *Rumah Rakit*, or a house above a wooden boat, and the second is *Rumah Tiang Seribu*, a stage house supported on columns. These buildings were constructed in relatively high density settlements consisting of simple wooden houses in close proximity. The material that is used in the houses was usually meranti hardwood for columns and flooring, with wattled coconut leaves as walls. Other materials also used include nibung timber or bamboo flooring, and coconut leaves or reeds as roofing. Predominantly fishermen lived in this close community.

**Transformation**

It is more typical nowadays, that fishermen’s houses are built at least one to one and half metres above sea level and locate their houses in-land, to avoid high seasonal tides. These coastal houses are not as tall as *Rumah Tiang Seribu*. The orientation of the houses are facing the beach to capture prevailing winds to enhance air circulation through the house. In Aceh, this stage house is designed environmentally to avoid flood, earthquakes and wild animals. According to Kamal A. Arif in his book, *Ragam Citra Kota Banda Aceh*, the Acehnese house or *Rumoh Aceh* was originally a *Rumah Rakit* boat house, whereby it was designed completely responsive to unforeseen environmental conditions. Then the design further transformed into a riverbank house, and was altered again into a stage house.

**Cross Ventilation**

The covered underfloor area or pit area between the stage house columns was cooler than inside house during the daytime. At noon, this was the main occupied area for house-hold activities, places for play, and for rest. Women utilised this space for caring for the children while making crafts, mats, and
furniture in the pit area. The triangulated part of the roof, known as Tulak Angen is both ornamental and for cross ventilation, according to Utoh, a traditional carpenter in Aceh. Tulak Angen also controls wind pressure through the building preventing damage by high winds. Daylight enters internal spaces through sunscreens (small holes located at the perimeter of the wall cladding) to control and filter the light. This feature is similar to Masyabiyyah, or oriel windows partially enclosed with carved wood latticework typically located on the second storey of a building and oriented along an east-west axis.

House Orientation

As the Mecca verandah area (Serambi Mekkah) in Acehnese assumes the importance of the Qibla direction. Rumoh Aceh reflects Islamic values of Acehnese people through its orientation of the roof on an east-west axis. According to architectural historian Greg Dall, the east – west orientation also is applied to all dwellings in the street. Male and female spatial differentiation also occurs in the way the roads connect to one another’s house. This separate access continues with two verandahs in the house. The male verandah is used for big events while the female verandah is used for household activities. The Rumoe rinyeun (male verandah) located in front part of the house while the female verandah is situated in at the rear of the house (Rumoe Likot). This verandah structure is also used for praying, with water containers placed in front of the house for wudhu or washing feet before prayer.
Carving

In *Rumoh Aceh*, carving is both for aesthetic purposes, symbolic references and ventilation. It is a hollow carving technique typically displaying Acehnese floral motifs, known as *Bungong Aceh*. Despite the floral motifs, there were other motifs such as cross, triangle, rhomb, and heart. These motifs are found under the windows, *kindang* (timber that encloses the beam above the stage column), in the wall above the window, roof beam, doors, room separator, and railings.
In summary, it is evident that these two main archetypes the stage house and the boat house respond to environmental conditions in both aesthetic and functional ways. At the same time they mediate socio-cultural relations through spatial hierarchies within the house, although this should be noted this does not necessarily relate to the status between males and females in the family. In Aceh the females, according to Hurgronje are the owners of the house and the males are more similar to the western concept of tenants. These kinship and social structures further contribute to what are considered the ‘unseen’ relations which determine the spatiality of the Acehnese house, and are further discussed in the next part of the paper.
Documenting the vernacular

Does documentation of vernacular buildings today introduce another problematic as the “reading” is undertaken in the contemporary context? Does this reduce the value of the capture in that it is a vernacular surviving now and probably vastly reconfigured from its original design and build? Is the process of documentation more authentic if it is undertaken with simple tools? VERNADOC involves simple tools with the view that it should be available and affordable to any one and most importantly the community under study. Sometimes the remoteness of the environment of vernacular buildings might preclude the use of digital tools even for the researcher, whilst costs would prohibit the local community embracing such methods. VERNADOC aims to democratise as well as disseminate the method to encourage wholesale documentation of remaining building stocks of value to local communities. Therefore as to what is valuable and worth documenting it is a conversation the
community determines. To alleviate problems such as documenting “vernacular” buildings as isolated objects of cultural production for the purpose of remembering or identity construction, the Lambunot community presided over the subjects of study. As the researchers we do not see it as our remit to then negotiate the power relations and influence amidst the community leaders, so the complexities of what to record remain essentially an internal decision-making process.

The holistic documentation method we have coined our process—the “Aceh Method”—actually involves three main techniques. Firstly, VERNADOC the manual drawing and measuring of the buildings onsite. This is the architectural anthropological approach as the researchers are onsite eating with, conversing with, observing and drawing the community context and buildings for at least a week. Deeper relationships and understandings form between house owner and researcher beyond polite conversation as they observe and to some degree become temporarily entrenched in the daily lives and spaces of the house owners. Secondly, digital capture of the houses and owners in colour photography using 3D tools such as the gigapan permit a full environmental contextual study. These images portray instances the drawer may not, as they are instantaneous and the equipment is sometimes self-supported. High resolution images enable zooming in and out on detail as the researcher requires once the photography is completed and compiled in the software. Drone photographic maps are also produced for establishing scaled urban design layouts of the houses, information not easily available via the other methods mentioned above. Finally, the digital and analogue information is converted into a virtual reality space, abstracting the information into an artificial environment but permitting the observer this time to walk through, orientate and imagine themselves in the vernacular. This model is accompanied by sound recordings of social histories of the built space, lighting level manipulation and a holistic experience using Google Cardboard or Oculus glasses to transport the viewer inside. These three modes of recording the vernacular—the Aceh Method—construct their own narrative of the socio-cultural conditions and the domestic structures and re-present another way of seeing. Whilst there are the limitations of this process there are also opportunities. and the latter consists of a type of “playing-out” re-conceptualising the vernacular to prompt multiple ways of seeing through the representation? It is no coincidence in this
gamified environment, as the software has been developed by the gaming industry, the observer is encouraged to consider modifications, conservation and preservation strategies to enhance the virtual realm as well as multiple applications of the tools, with which they are presented. In order to meet the unprecedented demands for houses, he [Oliver] writes, “it is essential that vernacular building traditions are supported; to assist local builders in matters of sanitation and disaster preparedness, while at the same time learning and benefitting from their experience, knowledge and skills.”

Imagining the seen/scene as well as the unseen (cosmological and spiritual)

Acehnese port locations around the northern tip of the coast, as well as at Pidie and Sumudra-Pasai along the east coast with Barus on the west coast, in addition to formidable wind conditions contributed to the docking of large vessels between these two continents and ensured the rise and significance, as part of the trade network in Southeast Asia, of what would later become the province of Aceh. Aceh’s urban settlements supported ethnicities ranging from Persians, Indians, Chinese, Arabs, Malays, Acehnese as an indication of some of the cultural diversity in the Sumatran port cities.

The House

Given these diverse cultural influences in Aceh’s early history it is not surprising the ‘traditional’ domestic architecture exhibits multiple references. More generally within Indonesia it is also interesting to observe even in Sumatra how varied the vernacular forms are despite environmental similarities. This would suggest cultural factors or ‘unseen’ conditions motivate different styles and spaces. cultural factors are operational on different levels. They all take advantage of the richness of the Indonesian architectural heritage which, regardless of whether it is embedded in house

..cultural factors are operational on different levels. They all take advantage of the richness of the Indonesian architectural heritage which, regardless of whether it is embedded in house
societies in the strict sense of or not, facilitates the pivotal position of the house expressing all kinds of individual and collective concerns.  

Anthropologists such as Schefold suggest that understanding built form requires multiple knowledges and ways of seeing or interpreting. He says, “...among other things, a consideration of the relations between different types of structure and the distribution of functions between them. ....motivations behind the buildings” and proposes that there is “an interweaving of kinship structure, rank and ritual.”

Amos Rapoport suggests the house generally is culturally realised as an ideal or utopian environment where its spatiality expresses its societal “social ideologies and an ethos for living.”

Anthropologist, Roxana Waterson explains how these social ideas and understandings both define the space physically in addition, orientate the individuals inhabiting it to act out behaviours and move within domestic space in a particular way. These may be the ‘unseen’ conditions, which are culturally constructed, dynamic practices transcribing the Acehnese house spatiality with meaning through complex social relationships. These practices are almost independent of environmental considerations and the pragmatic requirements of the house as a shelter, yet they contribute to the narrative of the vernacular.

The archetype of the boat-house may also be motivated by certain psychological triggers and probably as a response to environmental conditions such as fleeing the site rather than persisting with it if adversity strikes. The environmental conditions are therefore differentiated between climatic variables which are relatively frequent compared with say tsunamis which are geologically determined and less predictable or understood. Unpredictability, for human beings often correlates with a fear of the unknown. This fear or unfamiliarity with the physical environment of the sea as well as catering for ancient cosmological and spiritual belief systems has caused Acehnese societies historically to craft cultural responses within their domestic spaces.
Peter Nas, Dutch architectural historian in his study of vernacular Indonesian houses highlights this ‘unseen’ or cultural continuum of ideas which is fundamental to the meanings intrinsic to the architectural identity of the region so indirectly is realised in the aesthetic design. Nas says,

Every building is a re-interpretation of a historical architectural heritage whose origins, as a rule, are shared with related cultures. Knowledge of this heritage is indispensable in any attempt to interpret a particular local development, both in regard to its formal manifestations and to associated symbolic meanings.31

To a certain extent the geographical conditions of Indonesia being comprised of around seventeen thousand islands facilitated this spread of vernacular building traditions 32 Schefold believes as a result there are some common architectural features which may date back to prehistoric times. These entities include: tripartite structure, multi-levered flooring systems, outward slanting gables and walls, gable finials, a saddle-backed roof, as some examples in the region. The reasons behind these forms range between symbolic gestures as a secondary attachment, to the form actually responding to or being motivated by symbolic or cosmological belief systems. Rapoport in his book House Form and Culture 1969 argues the importance of understanding the limitations in explaining domestic space in purely functional or in purely cosmological terms. 33 Daniel Coulard states “we find in the house the intersection of the ‘visible and the invisible worlds’.34 These ideas have been referred to as the ‘seen’ and ‘unseen’ conditions which contribute to the production of Acehnese domestic space.

Rapoport has made the observation that “meaning resides not in things but in people, people want their environment to mean certain things.”35 This is evident in non-tangible physical ways but may be observed through anthropological methods of surmising the “rules” by which people engage with domestic space. These
“rules about the uses of space oblige people to act out their relationships to each other in particularly immediate and personal way, and they provide one of the most important means by which the built environment is imbued with meaning.”36

![Figure 6: Planning arrangements of the Rumoh Aceh](image_url)

Source: Dall 1982

Waterson believes it is necessary to understand the house as a microcosm of meaning where its layout, structural principles and ornamentation actively contribute to “the concept of an ideal natural and social order. 37 As an example these ideas are illustrated in the concept of male and female associations in the Acehnese house and are derived from most likely pre-Islamic ideas. Scholars Snouck Hurgronje and much later, Greg Dall in the following ways explained these ideas of the Acehnese house

…the main frame of the house is erected with the aid of communal labour, supervised by the village elders, religious leaders, and a master builder. To begin with, the site must be prepared and blessed and a favourable time appointed. First to be erected, again, are the two main house posts with their cross-beams, while prayers are recited form the Koran. These two posts are called the raja and putroe, or ‘prince’ and ‘princess’. In the finished house, these posts
stand in the main bedroom, regarded as the most important room in the house. During a wedding ceremony, they symbolise the bridge and groom, who sit next to appropriate pillars in this room. These posts (as well as some others) are further personified in having red, white, and black cloth tied around their tops like a turban. Between each layer of cloth is placed a written verse from the Koran. Evil spirits, notes Dall, are thought as most likely to enter the building through openings, especially near the roof, and this clothing of the tops of the posts designed to protect inmates of the house from harm. Koranic verses are commonly placed above door and window openings.

As Waterson has highlighted there are similar traditions in Thai and Malay customs associated with their vernacular houses which presupposes an inter-relatedness of ancient traditions (Sriwijaya period) between some Southeast Asian cultures purely displaying meaning through non-tangible associations. Significantly Waterson’s anthropological insight has shown how the relationship between land and sea and its resources for Southeast Asian peoples, whilst strongly integrated into their daily requirements, on the whole their understandings are holistic connections with their environment beyond the physical. For example, she states

Their sense of location thus embraces the entire environment and has almost nothing to do with man-made structures. Religion and myth reflect this attitude, in which humans see themselves as embedded in nature, co-operating with it, and maintaining reciprocal relations with different elements…" 

Waterson highlights how the structure of the house reflects the divisions of the cosmos into three layers and these have also been proposed by Dall in his study of the Acehnese house. The three layers consist of: “…the sacred upper world, abode of the gods, the middle world inhabited by humans, and the nether world, abode of animals and lower deities.”
In pragmatic terms these levels consist of the area directly beneath the house, being the most unclean part catering for the rubbish, animals and faeces. The next level is the human habitation space raised on piles as per the stage-house design elaborated upon earlier. Finally, the upper most realm is the attic space, the most sacred space of the house as it symbolically represents the closest ascension to the next world and it is where heirlooms are stored. The ornately carved skirting board between the underfloor and habitable floor area is symbolic of this profane separation. The same three-tiered division of the house has been remarked by a number of ethnographers that is appears to commonplace throughout the archipelago, implicitly or explicitly reflecting cosmological ideas.

![Figure 7. Layers of the house in the North Elevation Rumoh Aceh](image)

Source Dall 1982.

Ideas around both tangible and non-tangible Acehnese concepts of existence have been elaborated upon in the above discussion of theoretical considerations. The final analysis of these ideas...
in the context of the vernacular tradition of the Acehnese house demonstrate a theoretical convergence of these two concepts. This may be explained in terms of architectural space as partially demonstrating the climatic qualities of the stage house, the spiritual and dynamic opportunities presented by the boat house. The theoretical bridging of these ideas may be understood in terms of the historical continuity of the house but in another form. This version and metaphor for transformative Acehnese architecture, that of an “anchor” for social cohesion and resilience. The following discussion explores how the boat references in vernacular architecture prevailed but may have been metaphorical rather than physical, so the play between the ‘seen’ and ‘unseen’ being misappropriated.

In an exposition of the social values and belief systems as esoteric boat references, provide opportunities for reflection on future iterations of the Acehnese house as in modernity there is an erosion of social patterns in favour of individualism. How might the historical narratives of the Acehnese house assist in negotiations between global practices and local conditions, establishing what is traditional, and what is individual, and what is meaningful architectural space for local people to go about their everyday lives? 43

Convergent ways of seeing

In this attempt to pursue meaning in Acehnese built form and comparing it with other vernacular forms in the region Waterson has found that there is an occurrence of specific abstract themes which affect the way people occupy their buildings. 44 In merging ways of seeing to represent themes of environmental perception, climate-responsive design as well as catering to the spiritual, cosmological and shifting relations with place. Waterson describes this form of analysis as a “way in” for anthropologists or in this case architectural historians, to understand cultural factors and local ideas affecting Indonesian built form. 45 Firstly to what extent was ship symbolism esoteric and metaphorical or directly referencing a boat, here are some different scholars’ interpretation of these references.
Ship Symbolism

According to Nas, ship symbolism was prevalent across many different settlements within proximity of the sea in the Indonesian region. For example from Siberut one of the Mentawai islands had the uma or long house symbolically representing the cosmos or as Nas suggests “a ship comprising the whole society.” Moluccan villages also have always had ship symbolism in their architectural view of the world. De Jonge and Van Dijk highlight the nautical references as the settlements were often positioned on the top of craggy mountain tops like that of the crows’ nest on a ship. Whilst the house was seen as sailing from east to west whereby the rooms were designated as “helmsman’s rooms.”

Vroklage in his article 1936 “The Ship in the Megalithic Cultures of South-East Asia and the South Seas,” connects architectural styles across Southeast Asia, Melanesia, and Oceania with links to Japan and Madagascar. He identified somewhat uncritically common features of these dwellings consisted of pile foundations, saddle roofs and gable horns, and given the roof forms had pointed or sharp ends this “symbolised the boats in which bearers of this culture reached the Indonesian islands. He called this roof style the ‘ship roof,’ as better designating its ‘true’ meaning.” Manguin challenges this notion and suggests it is more likely that “ship-like shapes may thus be seen as an essential organising principle of an orderly society…” Therefore the ship reference resonates for Indonesian communities as a symbol uniting boat, house or community. Vroklage highlighted how many Southeast Asian communities believe in death their souls travel by boat to the after-life. Gittinger and Manguin suggest another explanation of the boat references as “expressing various ideas of social order or representing moments of transition.”

Social order and Transitions

As has been explained in this paper Arif suggests the Acehnese house actually originated as a boat-house. This concept is distinct from the associations mentioned above that alluded to a house being symbolic of a boat in its roof forms and structure. Manguin’s explanation seems the most plausible in
this initial reading of the secondary sources, conceiving the Acehnese house as a social ordering
principle in addition to structuring space reflective of transitions. It is also a dynamic concept which
appears applicable to the endurance of this traditional yet transformative vernacular form of housing.
It is also a means by which to conceptualise the convergence of ways of seeing concepts contributing
to the historical continuity, social cohesion and resilience of Acehnese communities in the production
of their architectural spaces to suit constantly changing ‘seen’ and ‘unseen’ cultural conditions.

CONCLUSION

As Rapoport has stated that “inhabited spaces are never neutral: they are all cultural constructions of
one kind or another. Any building in any culture must carry some kind of symbolic load….”54 The
intention of this study has been to analyse the Acehnese house from a “ways of seeing” perspective
that in effect offers multiple readings and at the same time offers insight. It has questioned, perceived
conditions of the physical environment as solely prompting types of architectural conditions situated
between the land and the sea and possibly the typical mode of reviewing vernacular architecture as
connected to place. Non-tangible relationships amidst interior and exterior spaces as well as ancient
links to the cosmological realms of the Acehnese house as well as tracing its beginnings to the sea and
the boat-house have raised other questions around its vernacular origins. To contemplate these ideas
including deconstructing notions of vernacular in theoretical terms whilst analysing through drawing
methods and representations structuring of Acehnese urban space, society and the domestic conditions
over time have evolved to produce resilient communities. The process has also revealed multiple
histories, recalling rich multicultural ideas. The ability of vernacular Acehnese forms to accommodate
this diversity of meanings and to demonstrate an historical trajectory also reveals the opportunities for
social cohesion and meaning in domestic space to endure, potentially into new forms of housing
whilst underpinned by past meanings. This form of dwelling has responded as a living and
transformative tradition. If the community and its benefactors remain open to the significance of
dynamic cultural factors and the house as a repository of memories in architectural design, it may
continue to adapt as a valued dynamic cultural form. The challenge remains to retain its
environmental and socio-cultural significant design features whilst embracing new materials and technologies for this archetype to have a role in Acehnese everyday life in the future.

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2 Crinson, M. (2016), 1/4
3 Nezar AlSayyad in Veliinga, xvii
4 Nezar AlSayyad in Veliinga, xvii
5 Nezar AlSayyad in Veliinga, xvii
6 Nezar AlSayyad in Veliinga, xvii
7 Nezar AlSayyad in Veliinga, xviii
8 Nezar AlSayyad in Veliinga, xviii
9 Nezar AlSayyad in Veliinga, xvii
11 Crinson, M. (2016), 2/4
12 Crinson, M. (2016), 3/4
14 Nezar AlSayyad in Veliinga, xvii
15 Ibid., 3.
19 Schefold et al.,14.
20 Ibid., 16.
22 Ibid., x.
23 Arif, Raga Citra Kota Banda Aceh, xi.
27 Ibid.
28 Ibid., 228.
31 Schefold et al, 2.
32 Ibid., 9
33 Ibid., 202
34 Daniel Coulard (1982: 188)
36 Ibid., 231.
37 Ibid., 57-58.
38 Snouck Hurgronje. 1906 The Achehnese Vol I & Vol II. 43 and Greg Dall. 1982.50-1
39 Waterson 2013, 304
40 Roxana Waterson Chapter 9: Houses and the Built Environment in Island South-East Asia: Tracing Some Shared Themes in the uses of space. 236-237.

41 Dall 1982 51
42 Ibid.
43 Waterson, 240..
44 Ibid., 227.
45 Ibid., 55.
49 Waterson 2013, 100-101 see Adams (1974) and Lew cock Brans (1975) in Dumarcay (1985)
51 Ibid., 188.
52 Waterson, 101-102.
53 Ibid., 102.
54 Rapoport, 28.
APPENDIX 3 – VICE GOV ACEH PRESENTATION
“Aceh Method”
Ways of seeing the vernacular across multimodal forms
Dr Julie Nichols, Mr Darren Fong

VR Model built by James Wilson, UniSA
“Aceh Method”

The “Aceh Method” is a bringing together of data from past and present knowledges through drawings, manual and digital to consider the future. It has been designed to address a lost connection between vernacular knowledge applied or adapted for future development.
“Aceh Method”
Ways of seeing the vernacular across multimodal forms

INTRODUCTION

Aceh Method involves:

• Conceptualising the Vernacular
• Different forms of representation – VERNADOC + Digital + VR Demo Aceh House

To record built cultural heritage at risk & to contribute to the reinstatement of Aceh’s archive.

Image: Lambunot Village, Mahyuni’s house & family – Lambunot, Indrapuri, Aceh Besar [author’s own photograph]
The Aceh Case Study - Past history

• A society of art, architecture and culture that has sustained multiple influence: (Animism, Buddhist and Hindu practices, Islamic and Christian thinking)

How these ideas revealed themselves in the built environment and specifically in the everyday architecture—vernacular structures—remains a source of intrigue and the purpose of this enquiry.

Image: Lambunot Village, Lambunot, Indrapuri, Aceh Besar [author’s own photograph]
Vernacular as a way of seeing

The Aceh Case Study – Recent History

Aceh 2004 tsunami...
The profound effects of these traumatic experiences have resulted in much research around future tsunami mitigation measures, ranging from scientific endeavours to do with predictability to large-scale engineering responses at protection.

Image: Lambunot Village Streetscape student drawing– Lambunot, Indrapuri, Aceh Besar [author’s own photograph]
Aceh Method + Forms of representation – VERNADOC + Digital

• Based on fieldwork July 2017 led to piloting of “Aceh Method”

• 1. VERNADOC

• 2. Digital Capture

• 3. VR Modelling
Forms of representation – VERNADOC

VERNADOC – is derived from the term Vernacular Documentation.

Method: It is a simple approach using basic tools (water level, tape measure, scale, pencil, ruler, pen) to measure and document on paper, a projection of a building or streetscape.

Onsite Hua Hin, Thailand
Photo: Darren Fong
Forms of representation – VERNADOC

Working in small teams to produce a set of coordinated drawings

Onsite Lambunot Village, Indrapuri, Aceh
Photo: Darren Fong
One of the key aspects to this process is that it is **immersive**.

You are onsite for one week measuring up, in the environment, with the community.

Onsite Lambunot Village, Indrapuri, Aceh
Photo: Darren Fong
Forms of representation – Digital Capture

The use of a tripod mounted device (Gigapan) to capture photos in a 360 degree sphere allows greater control over standard photographic parameters and generating image sizes of 350 – 500 MP for the Aceh Case Study.

Onsite Lambunot Village, Indrapuri, Aceh
Photo: Darren Fong
Forms of representation – Digital Capture

The images are then ‘stitched’ together to produce a sphere of images that can be viewed on the computer, or using VR goggles such as Oculus.

Onsite Lambunot Village, Indrapuri, Aceh
Photo: Darren Fong
A research assistant (RA) was employed to produce a digital model based on the VERNADOC drawings and the Gigapan images.

Unity and Unreal Engine 4 were utilised to produce the digital model.
Forms of representation – VR Model

The RA using the drawings and photographic images to create a model that:

- Creates an emotional connection
- Is accessible across devices
- Has navigation and interaction

Image and model by: James Wilson, UniSA
Forms of representation – VR Model

• The brief requirements were to be able to deliver the model using Oculus and Mobile device.

• The RA did not accompany the team to Aceh, this was deliberate to determine if a model could be produced.
VR Demo Aceh House
Concluding Remarks

The study demonstrates:

• A new archival format for built cultural heritage at risk
  • Consolidated information from Dutch & Jakarta archives in Aceh
  • Infrastructure maintained in Aceh & disseminated globally

• A resource for applications such as:
  • future post-disaster reconstruction planning
  • mental health patient benefits in dealing with loss [epigenetics]
  • Recording of social histories and vernacular knowledge for future generations
  • Tourist & community freely accessible information
  • Globally accessible to researchers, NGOs, architects, developers…
Digital Humanities: an overview of literature and scope of work in the field

Digital Humanities is not a new interdisciplinary academic field but more an evolving hub of related subject, inquiry, preservation, interpretation and dissemination, where the permutations of cooperative projects, applications, relevance and potential is dynamic and ongoing. Possible directions and outcomes for this collaborative research framework is constrained for the most part only by opportunity and funding. With the potential to forge interdisciplinary relationships within the academy as well as providing a platform for the humanities or humanistic studies to link meaningfully with projects and funding beyond academia, the field of Digital Humanities is becoming increasingly relevant and important in the business of universities.

Willard McCarty has asserted that to “ask whether the research of a field should go in the direction expressed or implied by a theory, practitioners must have a good idea of where the field has been.” ¹ According to Susan Hockey, Digital Humanities or as it was originally known, Humanities Computing, had its beginnings in the late 1940s with the work of Father Roberto Busa who began compiling an index of medieval Latin words found in texts of Thomas Aquinas and others. In collaboration with Thomas J. Watson of IBM in the United States the scope of work in this project was brought into the realms of possibility through scholarly endeavour and the innovative development and application of technology.² A seemingly unlikely alliance between science and humanities was forged in what can now be seen as an inevitable development on the road to the ‘digital age’. Over six decades later digital technology has evolved exponentially and infiltrated every aspect of life and work. The scope and field of Digital Humanities while sometimes contested, has now established as a recognised mode of inquiry, one which as Liu suggests, gives agency to data and weight to its preservation by revealing within it patterns and meaning.³

In a digital age complex knowledge structures and data repositories are being broken down, fragmented and made increasingly accessible through processes of digitisation. Berry and Fagerjord assert a need for considering the role of the human in this process as interpreter and practitioner responding to the archive and data, theorising its potential, developing research infrastructure and continuing to safe guard artefacts.⁴ In essence, engaging with the expansive possibilities of digitised data whilst maintaining meaning through theory and context. Practitioners in the field are often “scholarly editors, literary critics, librarians, academic computing staff, historians, archaeologists, and classicists” who according to Ramsey and Rockwell, produce built outcomes that include “digital libraries, encoded literary texts, 3-D models, charts and graphs of human phenomena” and supporting software, all adding meaning through engagement. Embodied within a digital artefact or prototype is both meaning and outcome which, they assert, presents knowledge without intervening

as an explanation. Thus an outcome, either collection or interpretation, becomes part of the framework of inquiry.

The nomenclature and recognition of the field of practice engaging digital technology and the arts, humanities and humanistic studies which has evolved, according to McCarty from ‘computers and the humanities’, to ‘computing in the humanities’, then ‘humanities computing’ has more recently become widely recognised as ‘digital humanities’. While the field of Digital Humanities has extended its framework to support an array of interdisciplinary, collaborative possibilities some see a need to assert disciplinary differences when seeking funding, clarifying the scope of a project, applying appropriate theoretical frameworks or finding and developing specific software or support tools. Subjects which are currently being identified individually include Digital History, Digital Heritage, Digital Art History, Digital Classics, Digital Arts, Digital Social Studies, and could be extended to other fields where the identity or focus of a project needs to be revealed outside the ‘big tent’ of Digital Humanities and positioned within traditional disciplines, contextual bodies of work or frameworks of understanding. As Stephen Robertson suggests, it can be useful to imagine Digital Humanities not so much as a single all-encompassing cover but “as a house with many rooms”. These rooms house not only researchers affiliated with humanities, arts and design disciplines but also technology specialists, coders and computing theorist as well as archivists, librarians and practicing historians. Likewise these rooms can be found outside universities, in archives of public heritage, art and design collections, museums, libraries, councils, or any significant digitised record collection or database.

Many universities are now establishing centres which specifically identify with Digital Humanities practice in order to support and encourage work in the area often providing space for collaboration alongside technical expertise and training. Sitting outside traditional disciplinary areas, as stand-alone entities or embedded within existing centres such as libraries, enables academic focus and methodological approaches to challenge or move away from more traditional frameworks, allowing epistemic communities of practice to emerge. While many institutions teach subjects, or graduate programs with Digital Humanities titles and foci, supported by schools of art, science and humanities it has yet to establish as a standalone discipline within the academy but is a growing influence in the University and GLAM sector. It is possible that its present framework of practice is more useful as a nomadic and reactive field leaving. As McCarty suggests the ‘growing mass of well-presented data is continuing to change conditions of scholarly work’ and must, he predicts, eventually become transformative as well as additive.

The following data reveals a complex network of Digital Humanities practitioners that has established and developed in a considered way over many decades. It also compares universities ranked highly in areas of arts and humanities both globally and in Australia. Website searches have been used to establish the publicised profile of Digital humanities practice within the university.

8 See Tables 1.0-1.4
Table 1.0 uses data from QS World University Rankings:

<table>
<thead>
<tr>
<th>University by QS Ranking Top 10 worldwide in 2018 in: Art and Design</th>
<th>Universities’ specifically stated engagement with ‘Digital Humanities’ website search</th>
</tr>
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<tbody>
<tr>
<td>1 Royal College of Art</td>
<td><a href="https://www.rca.ac.uk/search/?q=digital+humanities">https://www.rca.ac.uk/search/?q=digital+humanities</a></td>
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<td>2 Parsons School of Design at the New School</td>
<td>Offers digital humanities as a minor that sets out to explore creative work emerging from collaborations in the fields of design, technology and the liberal arts. <a href="https://www.newschool.edu/search.aspx?s=parsons&amp;q=digital+humanities">https://www.newschool.edu/search.aspx?s=parsons&amp;q=digital+humanities</a></td>
</tr>
<tr>
<td>3 Rhode Island School of Design</td>
<td>Offers a 2-year graduate program, Digital + Media focussing on interdisciplinary research-driven practice incorporating art, science, technology and critical theory. <a href="https://www.risd.edu/academics/digital-media/">https://www.risd.edu/academics/digital-media/</a></td>
</tr>
<tr>
<td>4 Massachusetts Institute of Technology</td>
<td>HyperStudio – Laboratory for Digital Humanities – is located in the School of Humanities, Arts and Social Sciences supporting teaching, learning and research in the school. <a href="http://hyperstudio.mit.edu/about/">http://hyperstudio.mit.edu/about/</a></td>
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<td>5 Politecnico di Milano</td>
<td><a href="https://www.polimi.it/risultati-ricerca?q=digital+humanities&amp;cerca=Search">https://www.polimi.it/risultati-ricerca?q=digital+humanities&amp;cerca=Search</a></td>
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<tr>
<td>6 University of the Arts London</td>
<td>Innovative Insights Hub – cross disciplinary research. Current projects include – Data Studio which examine potential outputs from the interaction of generative creative practice and ‘big data’ which explore the output of generative creative practice combined with big data. <a href="http://www.arts.ac.uk/research/ual-research-centres/innovation-insights-hub/iih-research/">http://www.arts.ac.uk/research/ual-research-centres/innovation-insights-hub/iih-research/</a></td>
</tr>
<tr>
<td>7 Pratt Institute</td>
<td>School of Information - offers advanced certificate in Digital Humanities – which teaches theory, methods and applications. Digital content, research, technology and experience and their application to academic and cultural heritage teaching and research contexts.</td>
</tr>
<tr>
<td>8 School of the Art Institute of Chicago</td>
<td><a href="http://www.saic.edu/searchresults/?q=digital+humanities&amp;sa=%EF%92%A5">http://www.saic.edu/searchresults/?q=digital+humanities&amp;sa=%EF%92%A5</a></td>
</tr>
<tr>
<td>9 Aalto University</td>
<td>In conjunction with the University of Helsinki – HELDIG – Helsinki Centre for Digital Humanities is a research and infrastructure network. It fosters collaborative work between research groups, organisations, companies and the general public. <a href="https://seco.cs.aalto.fi/projects/heldig/">https://seco.cs.aalto.fi/projects/heldig/</a></td>
</tr>
<tr>
<td>10 Stanford University</td>
<td>Stanford Humanities Centre – supports collaboration across disciplines and methodological approaches. Initiatives include: Centre for Spatial and Textual Awareness (CESTA); Centre for Interdisciplinary Research (CIDR); The Centre for Computer Research in Music and Acoustics (CCRMA) and The Digital Humanities Focal Group (DHFG) <a href="http://shc.stanford.edu/digital-humanities">http://shc.stanford.edu/digital-humanities</a></td>
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<tbody>
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<td>Academic Professor Deb Verhoeven recognised leader in the field of Digital Humanities in Australia, located in the Faculty of Arts and Social Sciences <a href="https://www.uts.edu.au/search/digital%2Bhumanities">https://www.uts.edu.au/search/digital%2Bhumanities</a></td>
</tr>
<tr>
<td>28</td>
<td>University of Technology Sydney</td>
<td>iGLAM – Laboratory for Innovation in Galleries, Libraries, Archives and Museums – research focus is the intersection of technology and heritage. 3D Visualisation and Aesthetics Lab is a research hub working on the visualisation of scientific and biomedical scan data and is an Art and Design lead centre. <a href="http://www.niea.unsw.edu.au/research/projects/domelab">http://www.niea.unsw.edu.au/research/projects/domelab</a></td>
</tr>
<tr>
<td>=49</td>
<td>The University of Sydney</td>
<td>Sydney Digital Humanities Research Group, based in the Faculty of Arts and Social Sciences, connects individual scholars within a collaborative framework. The group aim to “reassess the ways in which technologies applicable to digital humanities reshape traditional forms of scholarly communication and text and image research”. <a href="http://sydney.edu.au/intellectual-history/sdh/index.shtml">http://sydney.edu.au/intellectual-history/sdh/index.shtml</a></td>
</tr>
<tr>
<td>51-100</td>
<td>Australian National University</td>
<td>offers undergraduate and graduate programs in digital humanities. Centre for Digital Humanities Research (CDHR) based in the College of Arts &amp; Social Sciences is a research and teaching hub incorporating expertise in a diverse range of fields that include web science, arts and humanities, and providing support in the field with access to technologies and methodological expertise. Digital Humanities Lab provides space for students and scholars to engage in collaborative projects, as well as training in digital methods. <a href="http://cdhr.cass.anu.edu.au/">http://cdhr.cass.anu.edu.au/</a></td>
</tr>
<tr>
<td>51-100</td>
<td>Monash University</td>
<td>Offers undergraduate minors and specialisations in the area of Digital Humanities as part of their Arts program. <a href="http://www.monash.edu/pubs/2018handbooks/units/ATS2305.html">http://www.monash.edu/pubs/2018handbooks/units/ATS2305.html</a></td>
</tr>
</tbody>
</table>

Table 1.2 uses data from QS World University Rankings:

<table>
<thead>
<tr>
<th>University by QS Ranking Top 10 worldwide in 2018 in: Arts and Humanities</th>
<th>Universities’ specifically stated engagement with ‘Digital Humanities’ website search</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 University of Oxford</td>
<td>Oxford Summer School – Digital Humanities workshop offers training to academics, students as well as others working in the field of IT, libraries and cultural heritage. TORCH</td>
</tr>
<tr>
<td>2 Harvard University</td>
<td>Digital Humanities Café – an online forum highlighting digital humanities projects, scholarly communication, discussion, events and publications; metalab(at)harvard university home for digital art, design and humanities communities and collaborative projects; an interactive research guide created by Harvard University Librarians covering classics and medieval studies; East Asian Digital Humanities Lab</td>
</tr>
<tr>
<td>3 University of Cambridge</td>
<td>Cambridge Digital Humanities (CDH) – is a framework which connects and supports digital humanities projects within the university and encourages collaborative work and external linkages. The CDH framework consists of four main divisions including; CDH research; the CDH Lab - offers project advice and technical support; CDH learning – teaches skills and methods to existing researchers; and DH Network identifying and supporting a sense of community amongst DH practitioners and is located in the Centre for Research in the Arts, Social Sciences and Humanities.</td>
</tr>
<tr>
<td>4 University of California, Berkeley</td>
<td>Offers a minor in the Digital Humanities. Digital Humanities Working Group encourages interdisciplinary discussion of ongoing research in this area.</td>
</tr>
<tr>
<td>5 Stanford University</td>
<td>Stanford Humanities Centre – supports collaboration across disciplines and methodological approaches. Initiatives include: Centre for Spatial and Textual Awareness (CESTA); Centre for Interdisciplinary Research (CIDR); The Centre for Computer Research in Music and Acoustics (CCRMA) and The Digital Humanities Focal Group (DHFG)</td>
</tr>
<tr>
<td>6 Yale University</td>
<td>Digital Humanities Lab (DHLab) based in the Yale University Library, offers space within the library, supported by library staff, for humanities researchers using digital methods. It is supported by specialist staff who are part of Digital Scholarship Services and Statlab which more specifically supports the digital management of research data</td>
</tr>
<tr>
<td>7 Princeton University</td>
<td>The Centre for Digital Humanities at Princeton University is based in the university library and is a unit that supports research and academic practice using digital methods and technologies to enhance humanistic scholarship. The centre produces projects, training, contributes to digital tools and methods and disseminates these into the broader teaching community.</td>
</tr>
<tr>
<td></td>
<td>University Name</td>
</tr>
<tr>
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</tr>
<tr>
<td>8</td>
<td>The University of Tokyo</td>
</tr>
<tr>
<td>9</td>
<td>Columbia University</td>
</tr>
<tr>
<td>10</td>
<td>University College London (UCL)</td>
</tr>
</tbody>
</table>

Table 1.3 uses data from QS World University Rankings:

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<tbody>
<tr>
<td>16 Australian National University</td>
<td>Offers undergraduate and graduate programs in digital humanities. Centre for Digital Humanities Research (CDHR) based in the College of Arts &amp; Social Sciences is a research and teaching hub incorporating expertise in a diverse range of fields that include web science, arts and humanities, and providing support in the field with access to technologies and methodological expertise. Digital Humanities Lab provides space for students and scholars to engage in collaborative projects, as well as training in digital methods. <a href="http://cdhr.cass.anu.edu.au/">http://cdhr.cass.anu.edu.au/</a></td>
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<td>17 The University of Sydney</td>
<td>Sydney Digital Humanities Research Group, based in the Faculty of Arts and Social Sciences, connects individual scholars within a collaborative framework. The group aim to “reassess the ways in which technologies applicable to digital humanities reshape traditional forms of scholarly communication and text and image research”. <a href="http://sydney.edu.au/intellectual-history/sdh/index.shtml">http://sydney.edu.au/intellectual-history/sdh/index.shtml</a></td>
</tr>
<tr>
<td>27 The University of New South Wales</td>
<td>iGLAM – Laboratory for Innovation in Galleries, Libraries, Archives and Museums – research focus is the intersection of technology and heritage. 3D Visualisation and Aesthetics Lab is a research hub working on the visualisation of scientific and biomedical scan data and is an Art and Design lead centre. <a href="http://www.niea.unsw.edu.au/research/projects/domelab">http://www.niea.unsw.edu.au/research/projects/domelab</a></td>
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<td>39 Monash University</td>
<td>Offers undergraduate minors and specialisations in the area of Digital Humanities as part of their Arts program. <a href="http://www.monash.edu/pubs/2018handbooks/units/ATS2305.html">http://www.monash.edu/pubs/2018handbooks/units/ATS2305.html</a></td>
</tr>
<tr>
<td>62 University of Queensland</td>
<td>Digital Humanities and Social Sciences at UQ supports Digital Humanities research and collaboration at the Faculty of Humanities and Social Sciences. <a href="http://www.uq.edu.au/search/?q=digital+humanities&amp;submit=%EF%80%82&amp;output=xml_no_dtd&amp;client=ws&amp;proxystylesheet=ws&amp;as_sitesearch=https%3A%2F%2Fhass.uq.edu.au">http://www.uq.edu.au/search/?q=digital+humanities&amp;submit=%EF%80%82&amp;output=xml_no_dtd&amp;client=ws&amp;proxystylesheet=ws&amp;as_sitesearch=https%3A%2F%2Fhass.uq.edu.au</a></td>
</tr>
<tr>
<td>96 University of Technology Sydney</td>
<td>Academic Professor Deb Verhoeven recognised leader in the field of Digital Humanities in Australia, located in the Faculty of Arts and Social Sciences <a href="https://www.uts.edu.au/search/digital%2Bhumanities">https://www.uts.edu.au/search/digital%2Bhumanities</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organisations Supporting Digital Humanities Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADHO – The Alliance of Digital Humanities Organizations</strong></td>
</tr>
<tr>
<td><a href="https://adho.org/">https://adho.org/</a></td>
</tr>
<tr>
<td>Originally established in 2005 this is one of the foundation organisations in the field of Digital Humanities. It is an umbrella organisation supporting digital research and teaching in arts and humanities. The organisation supports the epistemic community of Digital Humanities practitioners engaged in digital and computer research, teaching, creating, dissemination and beyond. The association is involved with publications, presentations, collaborations and training. Constituent Organizations – The European Association for Digital Humanities (EADH), Association for Computers and the Humanities (ACH), Canadian Society for Digital Humanities/ Société canadienne des humanités numérique (CSDH/SCHN), centerNet, Australasian Association for Digital Humanities (aaDH), Japanese Association for Digital Humanities (JADH), Humanistica, L’association francophone des humanities numériques/digitales (Humanistica)</td>
</tr>
<tr>
<td>Publications:</td>
</tr>
<tr>
<td>DHQ – Digital Humanities Quarterly – open-access, online and peer reviewed journal published by ADHO</td>
</tr>
<tr>
<td>DSH – Digital Scholarship in the Humanities – peer reviewed online and print journal published by Oxford Journals on behalf of ADHO</td>
</tr>
<tr>
<td>DC/CN - Digital Studies/Le champ numérique – refereed, open access journal published by the Society for Digital Humanities in affiliation with EADH through ADHO</td>
</tr>
<tr>
<td><strong>EADH – European Association for Digital Humanities</strong></td>
</tr>
<tr>
<td><a href="https://eadh.org/">https://eadh.org/</a></td>
</tr>
<tr>
<td>Interdisciplinary association representing Digital Humanities groups in Europe that research, develop, and apply digital humanities methods and technology. Supports the formation of DH interest groups in Europe defined by region, language, or focus. Founded in 1973 as the Association for Literary and Linguistic Computing (ALLC) to support the use of technology in language and linguistic studies. The scope widened, and the association’s name was changed to reflect this in 2012.</td>
</tr>
<tr>
<td>Associate organizations: Italian organization, Associate Informatica Umanistica e Cultura Digitale (AIUCD), Czech organization, Czech Digital Humanities Initiative (CZDHI), German language based, Digital Humanities im deutschsprachigen Raum, Nordic organization, Digital Humaniora I Norden (DHN), Russian organization, Russian Association for Digital Humanities (DH Russia)</td>
</tr>
<tr>
<td>Publications:</td>
</tr>
<tr>
<td>DC/CN - Digital Studies/Le champ numérique – refereed, open access journal published by the Society for Digital Humanities in affiliation with EADH through ADHO</td>
</tr>
<tr>
<td><strong>centerNet</strong></td>
</tr>
<tr>
<td><a href="https://dhcenternet.org/">https://dhcenternet.org/</a></td>
</tr>
<tr>
<td>International network of digital humanities centres supporting cooperation and collaboration for digital humanities and allied fields generally and their capacities as ‘cyberinfrastructure’ in particular.</td>
</tr>
<tr>
<td>Affiliated with: Consortium of Humanities Centers and Institutes (CHCI) Initiative: DHCCommons online hub facilitating scholars seeking help or wishing to participate in collaborative digital humanities projects, in particular solo practitioners, providing peer review for mid-stage projects.</td>
</tr>
<tr>
<td>Publications:</td>
</tr>
<tr>
<td>DHCCommons Journal</td>
</tr>
</tbody>
</table>
| **ACH - The Association for Computers and the Humanities**  
| http://ach.org/  
| US professional association for computing humanists. Founded in 1978, provides a forum for the research, discussion, and technical explorations that have influenced both technology and the transformative way it is understood and used in the humanities.  
| **Member** – Alliance of Digital Humanities Organizations  
| **Publications:**  
| Humanist – an online forum for ongoing discussion within the international DH community, running for over twenty years.  
| Computing in the Humanities Working Papers – an important collection of refereed publications reflecting early discussions around computing tools and methods this is more of an archive.  
| Digital Humanities Questions & Answers – a community based discussion board.  
| **aaDH – Australasian Association for Digital Humanities**  
| https://aa-dh.org/  
| Founded in 2011 to bring together and support digital humanities researchers in Australia, Aotearoa New Zealand and the Pacific, bringing together researchers involved in applying computing and digital media methods to humanities and social science projects. Recognising the potential of data-driven research to change the way knowledge is produced, analysed, accessed as well as analysed, understood and presented. The association promotes theoretical as well as applied research.  
| **Sponsor** – Australian Academy of the Humanities  
| **Affiliate Organisations** – CHASS – Council for the Humanities, Arts and Social Sciences; ACHRC – Australasian Consortium of Humanities Research Centres; Anthem Press.  
| **JADH – Japanese Association for Digital Humanities**  
| https://www.jadh.org/purpose  
| Founded in 2011 to address the lag in document digitization in Japan due to the difficulties of digitizing Japanese characters and therefore texts. To create an environment where more collaborative research in the field can be realized.  
| **Publications:**  
| Journal of the Japanese Association for Digital Humanities – peer reviewed, open access, published by J-Stage  
| **Humanistica**  
| http://www.humanistica.ca/  
| **Purpose** – French speaking association for digital humanities. Bring together researchers in humanities and social sciences who use digital tools or have a numerical focus in their field. The identity of this organisation is based in Francophone practice and subject. The organisation aims to support collaboration, keeping the identity and specificity of the work French.  
| **Canadian Society for Digital Humanities – Société Canadienne des Humanités Numériques**  
| http://csdh-schn.org/  
| Canadian-wide association of representatives from colleges and universities engaged in research, teaching and creation that relies on digital and computer technologies. Offers opportunities for collaboration, publication and communication of work within and beyond the academic community.  

Sourced from organisations’ websites.
<table>
<thead>
<tr>
<th>Associations and Networks Supporting Digital Humanities Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DHNow - Digital Humanities Now</strong></td>
</tr>
<tr>
<td><a href="http://digitalhumanitiesnow.org/">http://digitalhumanitiesnow.org/</a></td>
</tr>
<tr>
<td>An experimental online edited publication distributing informally published digital humanities scholarship and resources.</td>
</tr>
<tr>
<td>Publications:</td>
</tr>
<tr>
<td>Selected content from Digital Humanities Now is published in online-only, peer reviewed, Journal of Digital Humanities.</td>
</tr>
<tr>
<td><strong>TEI - Text Encoding Initiative</strong></td>
</tr>
<tr>
<td><a href="http://www.tei-c.org/index.xml">http://www.tei-c.org/index.xml</a></td>
</tr>
<tr>
<td>An international organisation which develops, publishes and maintains guidelines for digital encoding of texts. The Consortium was proposed and supported by University of Virginia, University of Bergen, Brown university and Oxford University.</td>
</tr>
<tr>
<td>Publications:</td>
</tr>
<tr>
<td>Peer reviewed, online only, Journal of the Text Encoding Initiative publishes from the annual TEI conference but also special editions around themes or topics.</td>
</tr>
<tr>
<td><strong>DiRT</strong></td>
</tr>
<tr>
<td><a href="https://dirtdirectory.org/">https://dirtdirectory.org/</a></td>
</tr>
<tr>
<td>Online directory collating digital research tools facilitating researchers to find source supporting tools, management systems and analysis packages.</td>
</tr>
<tr>
<td><strong>The Stoa Consortium</strong></td>
</tr>
<tr>
<td><a href="http://www.stoa.org/">http://www.stoa.org/</a></td>
</tr>
<tr>
<td>Founded in 1997 the Stoa Consortium for Electronic Publication in the humanities its aims are dissemination of news, discussion of best practice and publication of online projects. It is maintained by group of Classical and Digital Humanities scholars. The Stoa is linked to the Perseus Digital Library at Tufts University and is the blog site for the Digital Classicist based in King’s College London.</td>
</tr>
<tr>
<td><strong>The Digital Classicist</strong></td>
</tr>
<tr>
<td><a href="http://www.digitalclassicist.org/">http://www.digitalclassicist.org/</a></td>
</tr>
<tr>
<td>A decentralised web-based hub for discussion, collaboration and dissemination of work which focusses on the application of digital methods to research of the ancient world.</td>
</tr>
<tr>
<td><strong>CA - Journal of Cultural Analytics</strong></td>
</tr>
<tr>
<td><a href="http://culturalanalytics.org/">http://culturalanalytics.org/</a></td>
</tr>
<tr>
<td>Peer reviewed, online, open-access journal debating and promoting research which engages with and analyses the study of culture using quantitative, computational methods.</td>
</tr>
<tr>
<td><strong>HuNI – Humanities Networked Infrastructure</strong></td>
</tr>
<tr>
<td><a href="https://huni.net.au/#/search">https://huni.net.au/#/search</a></td>
</tr>
<tr>
<td>Humanities Networked Infrastructure – is a national Virtual Laboratory set up under the Australian Government’s NeCTAR program. The network combines data from significant Australian cultural datasets and has been developed as a partnership between 13 public institutions headed by Deakin University.</td>
</tr>
</tbody>
</table>
Table 2.3  

**aaDH – Australasian Association for Digital Humanities Executive Committee Members**

<table>
<thead>
<tr>
<th>Year</th>
<th>Committee Member</th>
<th>Affiliated organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017-18</td>
<td>Professor Hugh Craig, President</td>
<td>University of Newcastle</td>
</tr>
<tr>
<td>2018-21</td>
<td>Professor Paul Arthur, Vice-president</td>
<td>Edith Cowan University</td>
</tr>
<tr>
<td>2015-18</td>
<td>Dr Simon Musgrave, Secretary</td>
<td>Monash University</td>
</tr>
<tr>
<td>2016-19</td>
<td>Dr Rachel Hendry, Treasurer</td>
<td>Western Sydney University</td>
</tr>
<tr>
<td>2018-21</td>
<td>Dr Tully Barnett, Communications Manager</td>
<td>Flinders Manager</td>
</tr>
<tr>
<td>2016-19</td>
<td>Dr Rahul K. Gairola</td>
<td>Murdoch University</td>
</tr>
<tr>
<td>2015-18</td>
<td>Dr Christopher Thomson</td>
<td>University of Canterbury, New Zealand</td>
</tr>
<tr>
<td>2016-19</td>
<td>Mike Jones</td>
<td>University of Melbourne</td>
</tr>
<tr>
<td>2015-18</td>
<td>Dr Sydney Shepp</td>
<td>Victoria University, Wellington, New Zealand</td>
</tr>
<tr>
<td>2015-18</td>
<td>Dr Cammi Webb-Gannon</td>
<td>Western Sydney University</td>
</tr>
</tbody>
</table>

**Previous Committee Members**

<table>
<thead>
<tr>
<th>Year</th>
<th>Committee Member</th>
<th>Affiliated organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-17</td>
<td>Professor Paul Arthur, Founding President, Ex officio member</td>
<td>Edith Cowan University</td>
</tr>
<tr>
<td>2015-17</td>
<td>Dr Tully Barnett, co-opted</td>
<td>Flinders University</td>
</tr>
<tr>
<td>2011-14</td>
<td>Dr Craig Bellamy, secretary, founding member</td>
<td>Victoria University, Wellington</td>
</tr>
<tr>
<td>2013-16</td>
<td>Professor Linda Barwick</td>
<td>University of Sydney</td>
</tr>
<tr>
<td>2011-14</td>
<td>Dr Katherine Bode, founding member</td>
<td>Australian National University</td>
</tr>
<tr>
<td>2011-14</td>
<td>Professor Hugh Craig, founding member</td>
<td>University of Newcastle</td>
</tr>
<tr>
<td>2014-15</td>
<td>Dr Jason Ensor, Communications Manager</td>
<td>University of Western Sydney</td>
</tr>
<tr>
<td>2013-16</td>
<td>Dr Brett D. Hirsch</td>
<td>University of Western Australia</td>
</tr>
<tr>
<td>2011-14</td>
<td>Professor Jane Hunter, founding member</td>
<td>University of Queensland</td>
</tr>
<tr>
<td>2015-17</td>
<td>Professor Sarah Kenderdine, President</td>
<td>École Polytechnique Fédérale de Lausanne (EPFL), Switzerland</td>
</tr>
<tr>
<td>2015-17</td>
<td>Ingrid Mason, Communications Manager</td>
<td>AARRNet</td>
</tr>
<tr>
<td>2011-14</td>
<td>Associate Professor Gavan McCarthy, founding member</td>
<td>University of Melbourne</td>
</tr>
<tr>
<td>2014-17</td>
<td>Dr Glenn Roe</td>
<td>Australian National University</td>
</tr>
<tr>
<td>2011-15</td>
<td>Dr Sydney Shep, founding member</td>
<td>Victoria University, Wellington</td>
</tr>
<tr>
<td>2011-15</td>
<td>Dr Tim Sherratt, founding member</td>
<td>University of Canberra</td>
</tr>
<tr>
<td>2013-16</td>
<td>Dr James Smithies</td>
<td>University of Canterbury</td>
</tr>
<tr>
<td>2014-15</td>
<td>Dr Nick Thieberger, secretary interim</td>
<td>University of Melbourne</td>
</tr>
<tr>
<td>2014-17</td>
<td>Professor Paul Turnbull, Vice-President</td>
<td>University of Tasmania</td>
</tr>
<tr>
<td>2011-15</td>
<td>Professor Deb Verhoeven, founding member</td>
<td>Deakin University</td>
</tr>
</tbody>
</table>

Sourced from aaDH website: [https://aa-dh.org/join/about/exec/](https://aa-dh.org/join/about/exec/)

Note: Of the Australian universities listed in tables 1.0 and 1.3 the following are not represented in the organisation: University of New South Wales, RMIT, University of Technology Sydney, Swinburne University, Queensland University of Technology, University of South Australia.
Reference List and Further reading

Note: The subject of Digital Humanities is too broad for a meaningful literature review or even overview however the following list provides some context and scope of the field at present.


APPENDIX 5 – QUESTIONNAIRE RESPONSES
DIGITAL HUMANITIES QUESTIONNAIRE + RESPONSES

RESPONSES FROM EASS SCHOOLS

SCHOOL OF EDUCATION

From: Susan Nichols
Sent: Tuesday, 24 October 2017 3:13 PM
To: Julie Nichols <Julie.Nichols@unisa.edu.au>
Subject: RE: EASS Funded Digital Humanities (DH) Project - IDENTIFYING STAFF ACROSS THE DIVISION

Dear Julie,

The ‘digital humanities’ is not a term I have heard used by members of the School to describe their research interests or approach. Our work in relation to digital tools, affordances and practices is located within education contexts. If the questions were worded more inclusively, there might be those who could contribute to a conversation; however questions about the meaning of ‘digital humanities’ do not resonate.

Sorry not to be more help,

Sue Nichols
Associate Head Research, Education

From: Julie Nichols
Sent: Monday, 16 October 2017 12:50 PM
To: Susan Nichols <Sue.Nichols@unisa.edu.au>
Cc: Matthias Schlesewsky <Matthias.Schlesewsky@unisa.edu.au>; Rana Moustafa <Rana.Moustafa@unisa.edu.au>; Joanne Cys <joanne.cys@unisa.edu.au>; Mary Jolly <Mary.Jolly@unisa.edu.au>; Christine Garnaut <Christine.Garnaut@unisa.edu.au>; SLL AADResearch <AADResearch@unisa.edu.au>
Subject: RE: EASS Funded Digital Humanities (DH) Project - IDENTIFYING STAFF ACROSS THE DIVISION

FAO. Associate Head of School Research
Associate Professor Sue Nichols

School: EDS

Dear Sue,

I am working on an EASS Funded Digital Humanities (DH) Project from Oct 2017 - December 2017. The Acting Dean of Research, Professor Matthias Schlesewsky has asked me to circulate this email to all of the Associate Heads of Research within the division.

The scoping study DH Project aims to identify staff members at UniSA whose research sits within the broad umbrella title of the “digital humanities”?
I would be very grateful if you would circulate the following 4 questions to your staff to whom DH relates? Please ask staff to respond in no more than 3 sentences per question to the following by 27 October 2017, C.O.B. to julie.nichols@unisa.edu.au

Broad Research Questions:
- What does digital humanities mean in 2017?
- What is UniSA’s contribution to digital humanities in 2017?
- What is UniSA’s contribution to digital humanities in future?

Specific Research Question:
- To what extent can UniSA offer a unique contribution to the global practices of DH?

Thank you in advance.

Kind regards,
Julie

Dr Julie Nichols
B. Arch Stud | B. Arch (Hons I) | PhD | Lecturer in Architecture
School of Art, Architecture + Design (AAD) | University of South Australia
Kaurna Building | City West Campus | GPO Box 2471 | Adelaide | SA 5001 | Australia

Julie Nichols
Mon 16/10/2017 16:48
Sent Items
To: Jeanne-Marie Viljoen;
You forwarded this message on 30/06/2018 08:57.
Thank you Jeanne-Marie, you are my first respondee!!
Cheers
julie

SCHOOL OF CREATIVE INDUSTRIES

From: Jeanne-Marie Viljoen
Sent: Monday, 16 October 2017 4:16 PM
To: Julie Nichols <Julie.Nichols@unisa.edu.au>
Subject: Re: EASS Funded Digital Humanities (DH) Project - IDENTIFYING STAFF ACROSS THE DIVISION

Oh sorry, I meant to add to my response in 3) that I think that the inclusion of the inadvertent gaze provides a way to include affect and empathy in knowledge building, something that the humanities are particularly good at and something that UniSA, as the most diverse uni in Australia and with a social justice agenda, can really help to drive in these times of fear mongering and demonising of the 'Other'.

Best wishes
JM
Yay! This is looking good...

1) To me, in 2017 the digital humanities refers to how knowledge in the humanities (such as literature, art, journalism, architecture, history and philosophy) is organised, produced & consumed in the digital environment including but not limited to VR, databases, digital archives, gaming, film and social media.

2) UniSA can contribute to the digital humanities in 2017 by developing an interdisciplinary precinct comprised of disciplines in Creative Industries, Art, Architecture and Design with a prominent, organised and supported research cluster in the digital humanities to which all disciplines can contribute. Outcomes from such a research cluster could include and electronic repository of digital knowledge which houses VR, databases, digital archives, gaming, film and social media projects that are used in teaching and research at UniSA.

3) Beyond 2017, UniSA could do research reflecting upon how this repository of digital knowledge mentioned in 2) is being used and among other things could assess whether this repository allows the development of: multi-sensory knowledge that is not merely dependent on the visual sense but evokes other senses through the visual to allow the productions, organisation, dissemination and consumption of knowledges across diverse cultures, languages and learning styles; a way of knowledge building that includes the ineffable (or the inadvertent gaze) and is thus a particularly flexible way of building knowledge in times of rapid change and diversity such as we find ourselves in.

That was very quick...
Best wishes
JM

SCHOOL OF ART, ARCHITECTURE AND DESIGN

Joanne Cys
Tue 24/10/2017 15:07
To:
Julie Nichols;
You forwarded this message on 30/06/2018 08:18.

What does digital humanities mean in 2017?
Practice and research that relates to digitised materials and digital tools within the glam sector
What is UniSA’s contribution to digital humanities in 2017?
AAD’s Architecture Museum components of collections, some past project work with e-rSA and current project work with NATSPEC, AAD’s VKRG projects, some work in CIL (Daniella Kaleva’s music project), AAD and CIL course contributions to UniSA Online Bachelor of Digital Media (AAD CC is Jo Mignone)

What is UniSA’s contribution to digital humanities in future?
National recognition as a leader in this area, national and international industry partners, international research network

Professor Joanne Cys LFDIA, PhD, MArch, BA (IntDes), BA
Head of School: Art, Architecture and Design
University of South Australia
+61 8 83020230 joanne.cys@unisa.edu.au
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CRICOS Provider Number: 00121B

Damian Madigan
Tue 24/10/2017 14:33
To:
Julie Nichols;

Hi Julie

Sorry, but I don’t understand what is meant by ‘digital humanities’. Is there some sort of briefing document around this?

D

Dr Damian Madigan
Lecturer in Architecture | School Academic Integrity Officer
Registered Architect (SA) 2525 | Fellow, Australian Institute of Architects

School of Art, Architecture + Design | University of South Australia, City West Campus

Julie Nichols
Tue 24/10/2017 20:00
Sent Items
To:
Damian Madigan;
Cc:
Julie Nichols;
You forwarded this message on 30/06/2018 08:18.

Dear Damian,

Thank you for your email.
To clarify, the terminology "digital humanities" (DH) is coming from the EASS PVC and not of my creation.

The terms are possibly too broad and therefore may not be meaningful to some researchers. Therefore, the call for responses was intended to invite a reframing of the DH terms, yet also to reflect UniSA's EASS staff research topics and overlapping fields of research which may fall under this notion of digital humanities.

In summary, if a re-theming may be more relevant, for example to address your intergenerational design thinking research this would also be very interesting to be included in the scoping study I am undertaking for EASS...hope this helps?

Cheers,
Julie

Response from Julie Collins, Architecture Museum

Broad Research Questions:
- What does digital humanities mean in 2017?
  The expansion of traditional humanities research to encompass the methods available through digital technologies, be they access, analysis, curation, preservation, visualisation, translation, or communications, in order to better understand our culture and society.

- What is UniSA’s contribution to digital humanities in 2017?
  In 2017 the Architecture Museum finalised the report from the RTIS funded project ‘Securing and enabling access to knowledge for the future: archiving digital architectural records’ which investigated the challenges associated with archiving digital architectural records. This project covered aspects such as the significance of architectural documents and their curation, as well as technical aspects such as retrieval and preservation.

- What is UniSA’s contribution to digital humanities in future?
  Opportunities exist for humanities scholars to make greater use of the Architecture Museum collections in their research. The Architecture Museum will be continuing its work on born-digital architectural drawings.

Specific Research Question:
- To what extent can UniSA offer a unique contribution to the global practices of DH?
  The Architecture Museum is in a unique position in that it already holds that most valuable of all commodities in today’s digital world – data. Architectural records are a tangible and visual reminder of social, cultural, technical and aesthetic dimensions of a society.

The Architecture Museum has a history of digital humanities projects – if you would like more information on them please email me.

Digital Humanities related projects at the Architecture Museum, 2008-current

Archiving digital architectural records: towards a national framework (2017-18)

Research team: Christine Garnaut, Julie Collins, RA (to be appointed)

Follow on project from 2016 project below to develop guidelines for practitioners for archiving digital architectural records.

Funded by NATSPEC

Securing and enabling access to knowledge for the future: archiving digital architectural records (2016)

Research Team: Christine Garnaut, Harriet Edquist (RMIT), Markus Stumptner, Julie Collins, John Gelder, Stephen Ward, Tim McGinley, Georg Grossman, Research Assistant: Chris Burns

Digital records are vulnerable to loss through technological obsolescence and degradation of physical media. Unlike traditional paper-based archives, digital records require constant maintenance in order to remain viable. Digital technology was introduced into Australian architectural practice during the 1980s and early 1990s, and digital files associated with this era are at particular risk.

This pilot project investigates the challenges associated with archiving digital architectural records by examining the surviving digital archives related to two case study buildings. The Ridgway apartment building (Charlick Court, Adelaide 1995), part of the East End Market residential redevelopment, was designed by Adelaide-based Woods Bagot architects. Storey Hall (Swanston Street, Melbourne 1995), an award-winning renovation and extension of a heritage building for RMIT University, was designed by Melbourne-based ARM Architecture (Ashton Raggatt McDougall).

A two-day symposium in April 2016 served as an opportunity to reveal and discuss findings from the pilot study and to identify areas and topics for future research. Symposium presentations and podcasts are available for download on the Born Digital program page. http://www.unisa.edu.au/born-digital

The project is a collaboration between researchers across several disciplines at UniSA – architecture, construction, information technology – and with RMIT Design Archives, Woods Bagot and ARM Architecture. The Canadian Centre for Architecture, Montreal, Canada, is contributing in an advisory
capacity. The research is supported by a University of South Australia Research Themes Investment Scheme grant, and by in-kind support from Woods Bagot and ARM Architecture.

**UniSA Research Data Access Portal (2017)**

The UniSA Research Data Access Portal showcases a range of Open Access research collections and datasets developed or collected by the University of South Australia. The UniSA Research Data Access Portal also highlights research projects and publications related to the available collections and datasets, and facilitates a variety of searches by researcher, organisation, discipline and keyword.

[https://data.unisa.edu.au/](https://data.unisa.edu.au/)

The Architecture Museum collections are available at:


**Morphogenetic Prototyping Lab Workshops (21-27 November 2016)**

Tim McGinley organised masterclasses exploring the implications for designers of considering design as if it had evolved and developed biologically. The workshops were hosted at UniSA’s City West Campus with transdisciplinary practitioners and researchers from around the world working at the intersection of design and science in the week of the 21st November. Julie introduced participants to the Architecture Museum and then collaborated with Manuel Muehlbauer from RMIT to guide the ‘Evotype’ group through a week long exercise in which they developed a housing typology evolutionary tree. The students’ presentation won the poster session.


**ARC LIEF Grant application (2016)**

Christine Garnaut, Julie Collins and Kiera Lindsey (School of Communication, International Studies and Languages) were chief investigators on an ARC Linkage Infrastructure Equipment Fund (LIEF) application led by Prof Julie Willis of the University of Melbourne to build a comprehensive online resource for undertaking built environment research online. The funding for the project includes employing a staff member to digitise records. This grant application was unsuccessful.

**UniSA Research Metadata System (2013)**
The University of South Australia Library chose the Architecture Museum to be one of the participants in their pilot study for the new University of SA Research Metadata System. The research metadata system is set to increase opportunities for research citations and make the University’s research outcomes more visible. The new system is part of a national initiative to build the Australian Research Data Commons. The project is being funded by the Department of Industry, Innovation, Science, Research and Tertiary Education and Australia’s top 20 universities have been funded to help develop cataloguing systems for research data and connecting them with the Australian Research Data Commons. The project was funded by the Australian National Data Service which is an initiative of the Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education. For more information see: http://w3.unisa.edu.au/unisanews/2013/june/story13.asp

Taking Australian Architectural and Built Environment Records into the Commons (2010)

The Architecture Museum worked with the Library at the University of South Australia on a ‘Seeding the Commons’ project funded by the Australian National Data Service (ANDS). ANDS is supported by the Australian Government through the National Collaborative Research Infrastructure Strategy Program and the Education Investment Fund (EIF) Super Science Initiative.

Titled ‘Taking Australian Architectural and Built Environment Records into the Commons’, the project aimed to make the Architecture Museum’s collection metadata more widely available to researchers locally and internationally through Research Data Australia.


Funded by the Australian National Data Service.

e-Research SA Vacation Summer Scholarship project (2010-11)

3D modelling of architectural records

Looking for technical expertise and fresh ideas about how to utilise and present items in this extensive collection, Christine Garnaut, Senior Research Fellow and Director of the Museum at the School of Art Architecture and Design at the University of South Australia, reached out to eResearch SA. Working in conjunction with one of the Museum’s research collaborators, History SA, Christine and her colleagues came up with the idea of putting together a 3D representation of a historical South Australian property. They chose Joseph Elliot’s cottage built in 1856 in Jeffcott Street, North Adelaide.

Lyndon Warren, a communications student from Flinders University joined them with an eResearch SA scholarship. The eResearch SA scholarship program is designed to match university students with researchers and supervisors, to assist with research projects that use eResearch techniques and
facilities. Lyndon Warren applied for a summer scholarship with e-Research and was matched with Christine and the Architecture Museum because of his knowledge of the 3D graphics program Maya.

With Christine’s and Julie Collins’ (Collections Manager) help, Lyndon began delving into the architecture of Joseph Elliot’s cottage, documenting every detail from the windowsills to the veranda. After coming to a good understanding of the layout of the cottage, Lyndon used the Maya program, (which is also used to create special effects in films) to build an interactive, photo image model of the home – transforming simple sketches and floor plans into an interactive 3D experience.


Funded by eResearchSA

Expanding Horizons: History, the City & the Web symposium (2010)

17 May 2010 8:30am - 18 May 2010 5:30pm
Bradley Forum, Level 5, Hawke Building, 50 North Terrace, Adelaide

A multidisciplinary symposium exploring:

• the contributions of historical studies to contemporary knowledge of cities and urban life from international and national perspectives
• innovative web-based approaches to disseminating historical research findings and engaging communities with place
• opportunities for e-research in historical studies including ways of promoting and accessing historical records online.

Keynote speakers:
Professor Helen Meller, School of History, University of Nottingham, UK
Professor Erik Olssen, University of Otago, Dunedin, NZ
Visiting Fellows at the University of South Australia under the International Science Linkages - Humanities and Creative Arts (ISL-HCA) Programme, University of South Australia

South Australian Architects and their Works 1836-2006 online database (2008-ongoing)

Research Team: Christine Garnaut, Julie Collins, Susan Collins, Alison McDougall and Christine Sullivan

The project developed a comprehensive single list of SA-based and trained architects compiled from a variety of sources and developed an online database of biographies about selected architects. The Architects of South Australia online database was launched in late 2008 and provides community and industry with material about the professional lives and contributions of a selection of the state’s
architects from 1836 to the present day. The database continues to be added to as funding allows and through the research work of Architecture Museum volunteers. See www.architectsdatabase.unisa.edu.au

Funded by the SA Department for Environment and Heritage (now DEWNR)
APPENDIX 6 – FUNDING STREAMS
Digital Humanities Project

Literature Review Draft v1_4  13 December 2017

International approaches to funding models which return investment to the GLAM sector/cultural institutions via funding sought by research institutions.

Some definitions of Digital Humanities (that maybe fit somewhere):

Digital humanities (DH) ‘is a broad term that covers many kinds of scholarly work.’ However, there is a common thread: ‘technology is allowing humanities work to be both more engaging and more accessible.’ (Vandegrift and Varner 2013 p. 68)

‘Digital humanities focuses both on the application of computing technology to humanistic enquiries and on humanistic reflections on the significance of that technology,’ (Sula 2013 p. 16).

Australian context: government funding cuts to the GLAM Sector

Barneveld and Chiu (2017) argue that public funding of Australian cultural institutions has diminished over the last thirty years, and suggest that as a result, cultural institutions are increasingly calling on sources of non-government funding.

‘While some see increasing reliance on non-government funding sources as a possible solution, this funding is limited, potentially unstable, and could adversely influence which parts of Australia’s heritage are collected, preserved, and made available publically’ (p.1).

There is also widespread concern in the GLAM sector that ‘increased private sector contribution could result in a corresponding drop in government funding’ (p. 8) – in effect, cultural institutions will be punished for being good at fundraising.

Weir et al (2017) discuss the National Library of Australia’s (NLA) ‘digital business’ project, which aims to ‘examine the unique value and long term sustainability’ of services including Libraries Australia and Trove. They state that ‘the changing economic climate and resource constraints facing all libraries sharpens the need to identify efficiencies and makes collaboration even more critical to success.’

DH in Libraries

Margaux DelGuidice (2012) argues for the continued relevance of libraries in a world where some simplistically claim that “everything can be found online.”

The traditional view of libraries as ‘warehouses full of books.’ ‘To remain relevant, libraries must continually reinvent themselves and find ways to keep pace with the seismic shift in how people seek and use information (Weir et al 2017).

There is quite a lot of literature about DH projects and DH centres in U.S. Academic (i.e. University) libraries including a study by Zorich (2008) that discusses funding models for various institutions (→ to investigate more thoroughly).

Vandegrift and Varner (2013) suggest that DH projects may add value to the work that libraries do:
‘Tying the library’s strengths, people and ideals to tangible products of scholarly work, whether they be publications or not, will give libraries a powerful response the next time a legislator claims “it’s all on Google anyways.”’ (p. 69)

Posner (2013) discusses a model of DH/library collaboration, particularly common in university libraries in the U.S., ‘in which a scholar (usually a faculty member) conceives and idea for a DH project and approaches the library for help in accomplishing it,’ (p. 45). Posner calls this the ‘service-and-support model’. In her words ‘digital humanities in libraries isn’t a service and libraries will be more successful at generating engagement with digital humanities if they focus on helping librarians head their own DH initiatives and projects.’ (p. 45).

Posner (2013) also lists ten challenges to doing DH in US academic libraries (interestingly, funding isn’t explicitly mentioned).

- Insufficient training opportunities
- Lack of support for librarian-conceived initiatives
- Too many tasks, too little time
- Lack of authority to marshal the appropriate resources
- Inflexible infrastructure
- Lack of incentive
- The complexity of collaborating with a faculty
- Overcautiousness
- Diffusion of effort
- Lack of a real institutional commitment (Posner 2013 pp. 46-49)

Funding Models for open access digital repositories

A literature review conducted by the NLA, focusing on the USA, the UK and a few European institutions suggests ‘...all digital services around the world are grappling with reduced budgets and an imperative to demonstrate that cultural information can be delivered through more efficient means’ (Weir et al 2017)

‘The infrastructure required to collect and preserve digital publications, as well as digitise and deliver analogue content, is costly to create and maintain’ (Weir et al 2017).

Kitchin et al (2015) critically examining fourteen funding models for open access repositories, grouped into six classes:

- Institutional
  - Core funded
  - Consortia (membership) model
  - Built-in costs at source
  - Public/private partnership
- Philanthropic
- Research
- Audience
  - Premium product/service
  - Freemium product/service
  - Content licencing
Infrastructural razor & blades

- Service
  - Pay per purpose
  - Free with advertising
  - White label development/platform licencing

- Volunteer (pp. 11-13)
  ➔ to follow-up in more detail.

Steinbach (2014) discusses crowdfunding as a means of funding and provides an extensive list of cultural heritage projects successfully crowdfunded, e.g. *Timbuktu Libraries in Exile* (➔ to investigate further).

Interestingly:

TROVE (NLA flagship online portal) ‘evolved in Australia as a result of strong leadership, a shared vision and years of library collaboration. It emerged despite receiving no additional government or philanthropic funding’ (Weir et al 2017).

**Other interesting literature related to DH**

Sherratt (2013) draws a comparison between web-based portals versus web-based platforms. In the GLAM sector, both portals and platforms aggregate the contents digitised and born digital cultural collections that may not be accessible through internet search engines (for example Google). While portals invite exploration, ‘the experience is almost always constrained – pre-determined by a set of design decisions about what is relevant, necessary, and useful.’ Platforms, on the other hand, provide tools (Application Programming Interfaces or APIs) that allow users to build their own interfaces on top of aggregated data: ‘instead of a single interface, there are innumerable ways of interacting with the data.’ In Sherratt’s words, ‘portals are for visiting, platforms are for building on.’ (Trove, DigitalNZ, Europeana, and the Digital Public Library of America are all examples of GLAM sector platforms).

‘APIs let computer programs talk to other computer programs, enabling application components to fit together like Lego blocks’ (Sherratt 2013).

Anderson et al. (2009) discuss a pilot project to explore the feasibility of archiving undergraduate studio work as an aid to teaching, research, accreditation and marketing. The article discusses the practical requirements of archiving a curated collection of student work (4-5 items per student – final submission material excluding backup work). Some of the IP and copyright issues surrounding retaining student work in a digital archive are also mentioned.
References


R. Kitchin, S. Collins and D. Frost, Funding Models for Open Access Repositories, Maynooth: Maynooth University; Dublin: the Royal Irish Academy and Trinity College Dublin (2015).


Margaux DelGuidice ‘Snooki, Whale Sperm, and Google: the unfortunate extinction of librarians when they are needed most,’ in In The Library With The Lead Pipe (February 2012) accessed online: http://www.inthelibrarywiththeleadpipe.org/2012/snooki-whale-sperm-and-google-the-unfortunate-extinction-of-librarians-when-they-are-needed-most/ 3 December 2017


To Follow up:

https://sites.google.com/site/glaminnovationstudy/
https://sites.google.com/site/glaminnovationstudy/home
Funding models for Open Access Repositories
Summary

Across jurisdictions and domains (academia, government, business) there has been much recent attention paid to open forms of knowledge production (e.g., open-source software, open data/metadata, open infrastructures) and the creation of open digital repositories for the unrestricted sharing of data, publications and other resources. This report focuses on the latter, documenting and critically examining 14 different funding streams, grouped into six classes (institutional, philanthropic, research, audience, service, volunteer), being pursued by open digital repositories to support their endeavours, with a particular focus on academic research data repositories. While open digital repositories are free to access, they are not without significant cost to build and maintain, and unstable and cyclical funding poses considerable risks to their future and the digital collections they hold. While the political and ethical debate concerning the merits of open access and open data is important, we argue that just as salient are concerns with respect to long-term, sustainable funding for the operation and maintenance of open access digital repositories.
Introduction

The founding of the internet was a significant disruptive innovation with respect to the publishing and sharing of data, information and knowledge. Progressively, online publication and databases have undermined traditional barriers to distributing and accessing the fruits of academic labour (e.g., papers, books, data), and created new forms of scholarly communication (e.g., social media), by enabling thoughts and files to be easily disseminated and accessed through ICT networks. Until recently, however, traditional forms of publishing and academic practices have remained remarkably robust, with academics largely preferring to publish in well-established, for-profit, peer-review journals and with print presses, and to hoard rather than share data. In part this is inertia, but it is also due to perceptions about quality, standards, the ways in which academic labour is assessed with regard to worth, and ingrained academic practices including career progression models built on traditional academic outputs. Current debates concerning open access publishing and the opening and sharing of data, and changes in the terms and conditions of research funding, are set to transform which academic outputs are disseminated and how.

Put simply, open access in its purest form is “digital, online, free of charge, and free of most copyright and licensing restrictions” (Suber 2013). In other words, it seeks to remove both “price barriers (subscriptions, licensing fees, pay-per-view fees) and permission barriers (most copyright and licensing restrictions)” (Suber 2013) so that material is freely available “on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles [or databases], crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself” (Budapest Open Access Initiative 2002). Here, academic outputs are seen as public goods, having largely been paid for by public monies (through core state funding to universities and research funding through state agencies), and their sharing represents a public good. In the ensuing debate a range of different open access positions have emerged that take varying positions on issues such as permission barriers, timing, and who pays for production and how (given that open access is not cost free, involving sig-
significant labour, service and technology costs), including gratis OA (free of charge, but not free of copyright of licensing restrictions), libre OA (free of charge and expressly permits uses beyond fair use), delayed OA (paid access initially, becoming open after a set time period), green and gold OA (pay-for-production followed delayed publication in an open access repository or gratis OA), and so on (Suber 2013).

Internationally there has been significant adoption of open access policies to research publications. For example, by October 2014, the ROARMAP project had documented over 90 policies, drawn from over 45 countries, in which funding agencies mandated open access to research publications. The European Commission expresses its vision on open access as follows:

“The vision underlying the Commission’s strategy on open data and knowledge circulation is that information already paid for by the public purse should not be paid for again each time it is accessed or used, and that it should benefit European companies and citizens to the full. This means making publicly-funded scientific information available online, at no extra cost, to European researchers and citizens via sustainable e-infrastructures, also ensuring long-term access to avoid losing scientific information of unique value.” (European Union 2009)

In Horizon 2020 all funded projects will be mandated to provide open access to peer-reviewed publications.

The natural progression from opening publications to wider access, to opening up other academic outputs such as research data and research infrastructures is also underway. Over the past two decades the research agencies of national governments and supranational bodies such as the European Union, along with philanthropic organisations, have invested extensively in funding a wide variety of data infrastructures. For example in Europe there are large-scale programmes such as European Strategy Forum on Research Infrastructures (ESFRI) and e-Infrastructures Reflection Group (e-IRG), and thematic large-scale European Research Infrastructure Consortiums (ERICs) relating to supporting access to research data in the humanities and social sciences, such as DARIAH (Digital Research Infrastructure for the Arts and Humanities), CLARIN (Common Language Resources and Technology Infrastructure), and CESSDA (Council of European Social Science Data Archives), as well as many others related to the sciences. Further, the EU Commission is also currently developing a Charter for Access to Research Infrastructures – a voluntary code of practice for transparent access to publicly funded
repositories. Other initiatives which enable open data sharing and preservation include the global Research Data Alliance (RDA) and the Digital Preservation Coalition (DPC). In 2012 the EU Commission re-iterated their commitment to open access, broadening its focus to research data, noting that:

“Open access to scientific research data enhances data quality, reduces the need for duplication of research, speeds up scientific progress and helps to combat scientific fraud. … [T]he High Level Expert Group on Scientific Data emphasised the critical importance of sharing and preserving reliable data produced during the scientific process. Policy action on access to data is therefore urgent and should be recommended to Member States” (European Commission 2012a)

Subsequently, Horizon 2020 has clearly stated that they intend to build on open access pilot projects funded under FP7, with clear recommendations that Member States ‘reinforce the preservation of scientific information’ (Spichtinger 2012) and a commitment to continue to fund ‘relevant open access projects (research, coordination and support) and infrastructure’ (European Commission 2012b). Moreover, in July 2014, the European Commission (2014) launched a major public consultation on ‘Science 2.0’, in order to develop a more open, data-driven and people-focused way of doing research and innovation. Science 2.0 includes open access, open code, open lab-books and open data. Similarly, in a major policy decision in the United States, an executive memorandum issued by the White House requires all federal agencies with research expenditures greater than $100 million per year to demonstrate how they will make taxpayer-funded research freely available to the public (Maron 2014). In other words, there is a concerted drive towards ensuring that research data infrastructures are open access in nature to ensure that the data they hold are freely available for re-use.

This move towards open access research data has been accompanied by a more broadly focused open data movement that has developed in tandem with the right to information (RTI) movement (freedom of information) and open government. The movement is built on three principles: openness, participation and collaboration (White House 2009); that through transparency, sharing and working together the value of data for society can be realised. In particular, attention has been focused on opening data that has been produced by state agencies (often termed public sector information/PSI) for re-use. Since the late 2000s the movement has gained traction with dozens of countries and international organisations (e.g., EU, UNDP), making thousands of previously

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restricted datasets open in nature for non-commercial and commercial use (see DataRemixed 2013). Such a shift in position has been facilitated by influential international and national lobby groups such as the Open Knowledge Foundation and the Sunlight Foundation, accompanied by the lobbying of knowledge economy industry groups and companies, and local citizen groups seeking to leverage municipal data.

In this report, we focus our attention on open access research data repositories and in particular how they are funded. We start by outlining the logic, work and benefits of digital data repositories. We note that while the arguments in favour of open access data repositories are compelling, most initiatives are funded precariously. This is followed by a critical examination of 14 different funding models, grouped into six classes (institutional, philanthropy, research, audience, service, volunteer), that might be used to provide revenue streams to support their work. We next discuss the challenges that delimit what models might be pursued and the risks of failing to find sustainable funding models, drawing on our own experience of seeking continuation funding for the Digital Repository of Ireland (DRI\(^1\); www.dri.ie), an initiative funded for four years by the Irish Higher Education Authority through its Programme for Research in Third Level Institutions, Cycle 5. We conclude that while much critical attention has focused on the relative merits of open access initiatives, much less consideration has been paid to how such initiatives are to be sustained in the absence of payment to access. Whilst open digital repositories are free to access, they are not without significant cost to build and maintain, and unstable and cyclical funding poses considerable risks to their futures and the digital collections they hold. It is therefore vital to develop sustainable funding models to support their long term future and ensure their benefits are realised.

\[\text{“while the arguments in favour of open access data repositories are compelling, most initiatives are funded precariously”}\]

\(^1\) The Digital Repository of Ireland (DRI) is a national research infrastructure for the humanities and social sciences that also serves as a trusted digital repository for the Irish GLAM sector (Galleries, Libraries, Archives, and Museums). The DRI is an open digital repository using open source software and open metadata CC-BY licence, and advocates for open access, however the content owners can set the rights and access conditions, with some data under copyright and access to sensitive social science data restricted for legal reasons.
Digital data repositories

Societies have collected, stored and analysed data for a couple of millennia as a means to record and manage their activities. For example, the ancient Egyptians collected administrative records of land deeds, field sizes and livestock for taxation purposes, the 1086 Doomsday Book captured demographic data, and the first national registry was undertaken in Sweden in the seventeenth century (Bard and Shubert 1999; Poovey 1998; Porter 1986). However, most of the data generated throughout history has been lost or destroyed because they were stored informally, not in a formalised archive, or it was decided to keep the information derived from the data (such as articles and books) which were considered more valuable, storing them in libraries. In general, only the most valuable datasets were retained, such as those associated with key scientific and cultural endeavours, government records, economic transactions, and legal contracts. The data of most scientists have been informally stored in files and boxes or on various hard-drives in their offices or at home. When they retire or die most of their effects are destroyed, and along with them any data they generated. The vast bulk of data generated for doctoral theses are lost after completion. Indeed, research funders have traditionally not required projects to retain and store data, or if they did it was only for a short time.

The development of digital storage solutions, which reduce the cost and space of retaining data, makes the wide-scale, long term storage of routine and lower-value data seem obtainable. However, unless such storage is formalised into archives and repositories (collections of archives), it is likely that they will ultimately go the same way as informal paper stores. Indeed, it is already clear that, despite significant investment in their creation, much of our recent born digital and digitised data has been lost, along with its cultural and economic value, due to storage media and equipment obsolescence, bit-rot, and the lack of preservation strategies and infrastructures.

Archives and repositories marry curation practices with institutional structures to ensure that data are preserved for future generations, whilst complying with legislation relating to access, privacy, ethics, copyright and intellectual property rights that delimits who can access data and what they can do with them. They are not simply data stores or back-up systems, but are actively planned, curated and managed, staffed by dedicated and specialist personnel who add value and ensure continuity (Borgman 2007; Lauriault et al. 2007; Kitchin 2014). Moreover, an archive seeks to preserve the full record set, not simply the data; that is, all supporting documentation,
metadata, and other related material that details provenance and context with respect to how the data were generated and should be treated, analysed and interpreted. The approach to preservation is mindful that technologies, protocols and best practice guidelines are subject to change and obsolescence, and that data will need to be migrated across platforms and technologies as new innovations come on stream, and that without active curation data may become corrupted, lost or shorn of its contextual metadata and supporting documents (Borgman 2007; Dasish 2012). Further, in many cases the archive tries to ensure interoperability between datasets by seeking common technical specifications relating to formats, standards, and protocols. By maintaining the integrity of the data over time, the archive becomes a resource that is trusted as a safe and reliable place to store, access and share data.

There are a host of good reasons to establish and maintain digital data archives and repositories (see Table 1). From a scientific perspective they: facilitate the re-use of data and enable datasets to be conjoined, increasing the likelihood of new discoveries and innovations; promote research integrity through the promotion of transparency about the research process and facilitating the replication of results; enable data to be exposed to the power of computational analytics, meaning that procedures and calculations that would be difficult to undertake by hand or using analogue technologies become possible in just a few microseconds; and ensure the best opportunity for reaching as large an audience as possible (Borgman 2007; Lauriault et al. 2007). Data sharing also makes available key data for teaching, improving pedagogical resources. The financial benefits of data infrastructures centre on the scales of economy created by sharing resources, avoiding replication and reducing wastage; the leveraging effects of re-using costly data where entry costs to a field might normally be prohibitive; and the generation of wealth through new discoveries (Fry et al. 2008).

As more and more research data and information are born digital or are digitised it is vital then to put in place and sustain digital repositories that will maintain the records of the past and present for future generations and for re-use. The resulting open access repositories will constitute critical research infrastructure that have significant spill-over benefits. And yet, most digital archives and repositories, with the exception of some national initiatives, are funded precariously, perhaps receiving initial core funding through research agencies and then seeking to survive by raising soft monies generated through a variety of sources. Consequently, they face significant challenges in ensuring their continued operation, which in turn creates large risks vis-a-vis their collections. This is a different situation from national libraries and national archives charged with preserving a nation’s paper records; while their funds may be decreasing due to austerity, there is an expectation these institutions will be funded in perpetuity and not on a project basis.
Table 1: Benefits of data repositories/infrastructures

<table>
<thead>
<tr>
<th>Direct benefits</th>
<th>Indirect benefits (costs avoided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New research opportunities.</td>
<td>No re-creation/duplication of data.</td>
</tr>
<tr>
<td>Scholarly communication/access to data.</td>
<td>No loss of future research opportunities.</td>
</tr>
<tr>
<td>Re-purposing and re-use of data.</td>
<td>Lower future preservation costs.</td>
</tr>
<tr>
<td>Increasing research productivity.</td>
<td>Re-purposing data for new audiences.</td>
</tr>
<tr>
<td>Stimulating new networks/collaborations.</td>
<td>Re-purposing methodologies.</td>
</tr>
<tr>
<td>Data available for teaching and student projects.</td>
<td>Use by new audiences.</td>
</tr>
<tr>
<td>Knowledge transfer to industry.</td>
<td>Protecting return on earlier investment.</td>
</tr>
<tr>
<td>Improves skills base.</td>
<td>Tools and standards have potential to increase data quality.</td>
</tr>
<tr>
<td>Increasing productivity/economic growth.</td>
<td>Reduces ad-hoc queries concerning data.</td>
</tr>
<tr>
<td>Verification of research/research integrity.</td>
<td></td>
</tr>
<tr>
<td>Fulfilling mandate(s).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Near term benefits</th>
<th>Long term benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value to current researcher and students.</td>
<td>Secures value to future researchers and students.</td>
</tr>
<tr>
<td>No data lost from researcher turnover.</td>
<td>Adds value over time as collection grows and develops critical mass.</td>
</tr>
<tr>
<td>Widens access where costs prohibitive for researchers/institutions.</td>
<td>Increases speed of research and time to realise impacts.</td>
</tr>
<tr>
<td>Short term re-use of well curated data.</td>
<td>Stimulates new research questions, especially relating to linked and derived data.</td>
</tr>
<tr>
<td>Secure storage for data intensive research.</td>
<td></td>
</tr>
<tr>
<td>Availability of data underpinning publications.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Private benefits</th>
<th>Public benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benefits to sponsors/funder of research/archive.</td>
<td>Input for future research.</td>
</tr>
<tr>
<td>Benefits to researchers and institutions.</td>
<td>Motivating new research.</td>
</tr>
<tr>
<td>Fulfil grant obligations.</td>
<td>Catalysing new companies and high skills employment.</td>
</tr>
<tr>
<td>Increased visibility/citation.</td>
<td>Transparency in research funding.</td>
</tr>
<tr>
<td>Commercialising research.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Compiled from Beagrie et al. (2010) and Fry et al. (2008)
Funding models for open access repositories

“For digital projects to remain vital, current, and discoverable, and be used by the people who want to use them, takes hard work from the project leaders and teams that create them. Creating a model that balances the desire to keep a resource openly available, with the need to cover the costs associated with continuing to actively develop it, is no simple task” (Maron 2014: 5).

The key challenge for open access repositories is to generate a sustainable funding model that ensures that the repository is maintained and can continue to develop, providing new tools and storing new datasets, while ensuring that the repository is free to access and maintains the trust of its users. In other words, to find a way to deliver core services with no or limited for-fee income. This has been the challenge presented to the Digital Repository of Ireland: after an initial four year period of core funding to identify, put in place, and transfer to a new funding model; to find a way to continue the work presently undertaken by a staff of 35 (not all of whom are full-time and a number of whom are funded by additional research grants, or by their host institution, rather than the initial core funding). To that end, we have actively been researching how other repositories have sought to fund their endeavours. Our research has identified 14 archetype funding sources, which can be divided into six classes (Table 2). We have evaluated the relative merits of each source in order to construct a new blended funded model, taking into account certain constraints, and produced a business plan and started the work of lobbying relevant organisations to realise this model. The latter is important, because even if a workable model is identified it does not logically follow that there will be relevant buy-in or a flow of resources/income. The model has to be realised in practice, which involves politics and business acumen. In the rest of this section we discuss each of our potential 14 funding streams in turn. This is followed by a discussion of the challenges and risks associated with implementation.

“The key challenge for open access repositories is to generate a sustainable funding model that ensures that the repository is maintained and can continue to develop, providing new tools and storing new datasets, while ensuring that the repository is free to access and maintains the trust of its users.”
Table 2: Models of funding open repositories

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Core funded</td>
<td>The state provides the core operational costs through a subvention as with other state data services such as libraries, national archives, statistical agencies, etc.</td>
</tr>
<tr>
<td>B Consortia (membership) model</td>
<td>Build a consortium that collectively owns the data, pools labour, resources, and tools and facilitates capacity building, but charges a membership fee to consortium members to cover shared value-added services.</td>
</tr>
<tr>
<td>C Built-in costs at source</td>
<td>When research grants are awarded by funders applicants must build in the costs for archiving the data and associated outputs in a repository at the end of the project. This funding is transferred to the repository for any services rendered.</td>
</tr>
<tr>
<td>D Public/private partnership</td>
<td>Public/private partnerships, with the public sector providing the data and private companies providing finance and value-added services for access and re-use rights.</td>
</tr>
<tr>
<td>E Philanthropy/corporate sponsorship</td>
<td>Funding is sourced from philanthropic organisations as grants, donations, endowments and/or corporate sponsorship. If an endowment is sizable then core services can be funded from the interest. The donations can also be used to leverage other funding, for example, matched money from the state. This can also be reversed, so that state funding is used to try and leverage philanthropic funding/corporate sponsorship.</td>
</tr>
<tr>
<td>Model</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>F</strong> Research funded</td>
<td>The majority of funding is generated through the sourcing of research grants from national and international sources, with overheads being used to subvent core services.</td>
</tr>
<tr>
<td><strong>G</strong> Premium product/service</td>
<td>Offers end-users a high-end product or a service that adds value to data (e.g., derived data, tools or analysis) for payment, either as fixed payment, recurrent fees or pay-per-use, without using monopoly rights. This enables the data producer to gain first-mover advantages in the marketing and the sale of complementary goods.</td>
</tr>
<tr>
<td><strong>H</strong> Freemium product/service</td>
<td>Offers end-users a graded set of options, including a free-of-charge option that includes basic elements (e.g., limited features or sampled dataset), with more advanced, valuing adding options (e.g., special formats, additional functionality, tools) being charged a fee. Opens up the product/service to a wider, low-end market and more causal use, whilst retaining paid, high-end product/service for more specialised users.</td>
</tr>
<tr>
<td><strong>I</strong> Content licensing</td>
<td>Make the data free for non-commercial re-use, but charge for-profit re-users.</td>
</tr>
<tr>
<td><strong>J</strong> Infrastructural razor &amp; blades</td>
<td>An initial inexpensive or free trial is offered for products/services (razor) that encourages take-up and continued paid use (blades). It might be that access is free through APIs, but that computational usage is charged on a pay-as-you-go model, with the latter cross-subsidizing the former.</td>
</tr>
<tr>
<td><strong>K</strong> Pay per purpose</td>
<td>Charge for services beyond data use, such as ingest, archiving, consulting and training services.</td>
</tr>
<tr>
<td><strong>L</strong> Free with advertising</td>
<td>Products/services are provided for free, but users receive advertising when using the product/service (revenue generating) or the products/services are provided by different companies and branded as such to encourage use of their other products/services (cross-subsidization).</td>
</tr>
</tbody>
</table>
### Table 2: Models of funding open repositories contd.

<table>
<thead>
<tr>
<th>Service</th>
<th>Volunteer</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>White-label development/platform licensing</td>
<td>A customised product/service is created for a client and branded for their use, with that client paying a one-off fee or subscription that includes maintenance and update costs.</td>
</tr>
<tr>
<td>N</td>
<td>Open source</td>
<td>Offers end-users data products/services for free, with the infrastructure maintained on a voluntary basis, including crowdsourcing. Assembled from Ferro and Osella (2013, 2014); Maron (2014); consultation with stakeholders and team discussion.</td>
</tr>
</tbody>
</table>

Assembled from Ferro and Osella (2013, 2014); Maron (2014); consultation with stakeholders and team discussion.
Source income through institutional arrangements

(A) Core funded

Traditionally, data produced and released by the various sectors of the state has been funded by the state. In some cases, the costs of producing and distributing such data have been recouped in full or in part through cost-recovery charging. For example, mapping agencies often operate as trading funds, charging users to access and employ the data. Similarly, libraries, national archives and statistical agencies often provide free access to resources, but charge for some specialist services or for commercial re-use of the data. Nascent research infrastructures have followed a similar model, being core funded by research agencies and being free to access for researchers with the exception of some services. However, access for the wider public or commercial entities are often restricted, often for good reason (e.g., social science archives that house sensitive personal information).

These models of core funding are under threat in two main ways. First, the open data/open access movement has made a concerted attack on trading funds and payment for data or services. The argument advanced is that the citizens and companies have already paid for the data produced through public entities (e.g., government departments/agencies, universities) through tax payments, and moreover opening data will produce public sector savings (by reducing transaction costs, such as staffing required for marketing, sales, communicating with customers, and monitoring compliance with licence arrangements), increase taxation revenues through new innovative products that will create new markets, and leveraging diverse consumer surplus value providing significant public goods (Pollock 2006, 2009; de Vries et al. 2011; Houghton 2011). In other words, zero or marginal cost approaches are seen as being more advantageous over the long term than cost recovery strategies (European Commission 2011).

Second, whilst this argument holds in theory, there is little concrete evidence that open data does pay for itself in real terms, and even if it does that the corresponding savings/taxation are spent on such initiatives. In reality, the massive growth in digital data and the pressure to store and retain evermore of them and to make them open access means huge pressure is being exerted on existing resources at the same time that the means to raise funds to support the development and maintenance of repositories is being restricted. Moreover, hugely increasing the number and size of open access repositories requires a commensurate increase in core funding at a time when public sector finances are under pressure to downsize. What this means is that core state
funding, if it is secured, often needs to be supplemented by other sources of income. Indeed, the national open access data repositories we contacted typically receive approximately 70% of their funding directly from the state, making up the difference through other funding mechanisms. Repositories that are not national in status are less likely to secure significant state subvention and are therefore more likely to be under pressure to identify and source other funding streams.

(B) Consortia (membership) model (shared service)

In a consortia (membership) model, rather than a large subvention from a single state agency, many stakeholders provide subscription fees of a smaller amount. The benefit for the stakeholders is to gain access to a sophisticated shared resource and its tools that deliver more collective value than any single contribution. This shared services model has been successfully employed within the public sector in many jurisdictions, across many domains, and is a key part of the funding model for organisations such as the Digital Preservation Coalition (DPC). For relatively new repositories, establishing a membership/shared service model can be a challenge because institutions are being asked to invest in a resource under development, rather than at maturity, at a time when their budgets are being squeezed. At the same time, a shared service should help to ameliorate budget cuts through the sharing of costs for a key service.

(C) Built-in costs at source

Many funding agencies now expect the data from the projects they fund to be deposited in an open access repository to ensure potential future re-use and to ensure research validation and integrity. The built-in costs at source model, used by UK research grant agencies and elsewhere, requires that archiving costs are factored into the original grant application. These costs are either used by the research team to prepare the data for archiving or are transferred from the grant to an open access repository for ingest, storage, and other services. This model is attractive with respect to providing a sustainable funding base for ingesting research data and for increasing the data available, but the funds typically pay for those services rather than the core costs (unless an overhead is factored in). The establishment of such a funding model is beyond the control of any single repository and is reliant on a central government mandate. Moreover, it has to be phased in over time meaning funds in its initial years will be small, though they should grow to a sustainable level. However, it should be noted that the Archaeology Data Service in the UK has found such funding to be non-linear making it difficult to plan around.

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4 Netherlands’ Data Archiving and Networked Services, Netherlands Institute for Sound and Vision, UK Data Archive, Swedish National Data Service.
5 http://archaeologydataservice.ac.uk/, last accessed 15 April 2015.
(D) Public/private partnership

Public/private partnerships (PPPs) have been used extensively by the governments over the past couple of decades to co-fund the development of public infrastructure such as housing, roads and service provision. Such partnerships only work where there is a clear benefit to both parties, delivering a profit to the private partner. While PPPs might have a role in repository projects, with the private partner making money from advertising revenue, ingest services, white label development or by producing commercial products from the archived data, the success of such a venture will, in large part, be dependent on the type of data being archived. Datasets such as transport, weather, health and map data all have potentially high commercial value. However, cultural heritage and data from relatively esoteric research projects have much weaker direct commercial value. It is therefore likely that PPPs will only be an attractive option where the private partner can envisage some means to leverage the data, or attract traffic to the site, or are getting involved on a philanthropic basis.

Source income through philanthropy

(E) Philanthropy

Philanthropy is an important source of funding for research in many nations. Philanthropy might therefore be a key source of funds for archiving the data resulting from research projects. It might also be the case that philanthropic donations can be used to leverage matched state funds, or alternatively state funding is used to try and leverage philanthropic funding or corporate sponsorship. There are two issues with philanthropic funding. Firstly, it is usually best sourced with respect to specific sub-projects rather than core activities. Secondly, it is cyclical in nature, meaning it is difficult to plan multi-annual budgets given the uncertainties over funds raised.

Source income through research

(F) Research funded

Many aspects of research data infrastructures are funded through research funding, including the building of an infrastructure itself and projects that add to and utilise it.
However, research funding typically does not cover core maintenance costs, but funds new developments. Contractual obligations with respect to these grants mean that funds cannot be diverted for non-project purposes. And while research grants typically have associated overheads, it would take a continuous supply of very large volumes of research income to provide sufficient overhead to fund core costs in addition to the costs of running the new projects including such overhead items as office space, facilities etc. Research funding is also highly competitive (and becoming more so) and cyclical, meaning that it cannot be relied on to provide a sustained income stream. That said, research funding can form an important part of a blended model of repository income.

Source income from audience

(G) Premium product/service

In the absence of core or subscription funding then funds can be raised through the selling of services. A premium product/service approach involves selling end-users a high-end product or a service that adds value to data that they cannot gain elsewhere. Such a premium approach works best with data that has a high commercial utility and will add value to the work being undertaken by the purchaser. However, it also runs against the ethos of open access to data and is therefore of limited utility to open access repositories.

(H) Freemium product/service

Some new data infrastructures, such as Dublinked6, have been experimenting with freemium product/services. All users are offered a free-of-charge set of options that include basic functionality and key datasets. However for a fee, additional services are available. Maron (2014) identifies six types of such value-added services: charging for a higher-quality version; charging for additional formats; charging for additional features; offering more storage for a fee; charging for an advertising-free environment; and charging for different end uses (free for education and non-for-profit use, but charging for commercial use). A freemium model is a more attractive option than the premium model, but still means that some of the infrastructure is not open access. That said, it might provide some sustainable lines of funding whilst providing a workable free service for non-specialist users. To generate sizable income it would require a large number of users to opt for the paid services, which will depend on the value of the datasets to users, with many research datasets having intrinsic rather than monetary than value.

(I) Content licensing

Depending on the content, a potential source of funding is content licensing. Here, content such as art images, manuscript screen shots, audio-visual files, is made available for commercial re-use in publishing, media and advertising/marketing. Such content licensing can be highly profitable if well organised, with some select digital archives in the UK and France generating revenue in the hundreds of thousands of Euro (Maron 2014). To be able to content license the repository must either own the content, or have struck a deal with those that do. There are also associated costs, with the ability to realise fees requiring cost recovery, licensing and marketing expertise and resources. Again, the funding stream is likely to be cyclical and difficult to predict, and also at odds with open access.

(J) Infrastructural razor and blades

This is a commercial funding model for encouraging initial usage that might translate into a paid service. Users are given an initial trial-run. When this expires they are offered continued service for a fee. This might be combined with a freemium model, though it clearly works against the wider ethos of open access.

Source income through services

(K) Pay per purpose

This is a form of cost recovery for specific services such ingestion, archiving, consulting, and training, with data access being free. As with research funding, the monies are to be used to provide the services paid for and cannot be simply diverted to cover core costs, though any overhead on such payments could be used in this way. Moreover, it is a cyclical source of potential income. The extent to which such service provision can provide a viable funding stream is dependent on potential demand, which will vary between repositories in line with expertise levels across depositors and their ability to pay.

(L) Free with advertising

Many internet services such as Google, Twitter, Flickr and Facebook offer their services to users for free, funding their services through advertising revenue (and also selling data about users to data brokers). However, such a model requires a high volume of site visits to provide a sustainable source of income. For example, Maron (2014) reports that
to generate US$50,000 a year in advertising revenue, a website would need around two million page views annually. Given that most research repositories are serving quite small constituencies of academics and interested commercial and lay readers, site traffic is likely to be quite modest and advertising revenue therefore small. There is also a wider question as to whether public sites should be delivering commercial advertising content.

(M) White-label development

This is another internet funding model where versions of a web service are tailored and branded for a specific entity for a fee or subscription. Here, the repository and its underlying architecture is used as the ‘engine’ for other initiatives. For example, in our case, the DRI content and back-end architecture was used for an Irish government website Inspiring Ireland, where the front page and the look and feel of that site is independent of the DRI site. In this sense Inspiring Ireland is powered by DRI hardware, software and expertise, but this is not immediately obvious to users. Ongoing maintenance of the site is either taken on in-house by those who commissioned the white-label development or paid for through an ongoing service contract. Again, such initiatives pay for a specific service, with only overhead contributing to core costs, and IP ownership needs to be treated carefully.

Volunteered resourcing

(N) Open source

Enterprises such as Open Street Map and Wikipedia use the power of crowdsourcing and voluntary labour to create comprehensive mapping and encyclopaedia data that are free to use. Whilst crowdsourcing has its benefits, bringing many minds to bear on a task, it is notoriously difficult to mobilise and manage a crowd and to keep it motivated, and to assure data quality, integrity and standards (Carr 2007; Dodge and Kitchin 2013). Whilst an open source approach to open access repositories might include the running of hackathons to develop new tools and APIs, or to source specific data, it is unlikely that it can be relied upon to provide core services for a long term repository that requires specialist knowledge, trust and continuity, except in a few specific cases where there might be significant buy-in by potential users and where the service is cross-subsidised by other projects (providing necessary infrastructure and staffing, for example, through research projects).

Challenges in funding open access data repositories

Identifying and rolling out potential funding streams is no easy task and it is made more fraught by a set of challenges that provide context and frame the options open to those operating repositories. These challenges take two forms, general and specific, and also create a set of risks that potentially jeopardise the realisation of a sustainable funding model.

General challenges

A key general challenge that is beyond the control of a repository is the financial and political climate in which it operates. There needs to be political will not just towards the notion of open access, but to fund it in practice, and the state and funding agencies have to be in a position to supply such funding, and to coordinate their approach, policies and even legislation. In the context of DRI, Ireland has just suffered a severe economic recession and an ongoing period of austerity that has led to major cutbacks in public finances (including all the major stakeholders of the repository), cutbacks to research funding, and a prioritisation of remaining funds towards industry-focused research and job creation. Moreover, the competition to secure such funds has increased dramatically as agencies seek to replace lost core funding with soft monies. Raising funding in such a context is a major challenge.

Another challenge facing many repositories is persuading data holders to share a valuable commodity. An underlying principle of academic research is that all aspects of knowledge production should be freely available for others to inspect and test through replication. In practice this principle has never worked optimally as researchers are often reluctant to share data which has been time consuming and costly to produce and provides a competitive advantage in advancing knowledge production. As Borgman (2007) notes, sharing is only common in a handful of disciplines such as astronomy, genomics and geomatics which rely on large, distributed teams and large and expensive equipment and infrastructure where research funding agencies have demanded collaboration in return for the massive investments required. In other disciplines it is shared occasionally or not at all. She concludes that “[t]he ‘dirty little secret’ behind the promotion of data sharing is that not much sharing may be taking place” (Borgman 2012: 1059), noting a number of disincentives to the sharing of data:

- a lack of rewards to do so;
- the effort required to prepare and archive the data;
- a lack of expertise, resources and tools to archive data;
- concerns over being able to extract value prior to others in terms of papers and
• patents given the effort invested in generating the data;
• concerns over how the data will be used, especially if they relate to people, or how they might be mishandled or misinterpreted;
• worries over the data generating queries and requests that will create additional work;
• concerns over issues with the data being exposed and research findings being undermined through alternative interpretations of the same data;
• intellectual property issues;
• a fear that the data will not be used, thus archiving constituting a wasted effort (Borgman 2007, 2012; Strasser 2013).

As such, ensuring data are archived for future re-use requires more than creating open access repositories; it is going to require a cultural change in research practices. This change is starting to be driven using a carrot and stick strategy. On the one hand, incentives are starting to be used to encourage researchers to deposit data, such as promoting data citation and attribution (Borgman 2012), and building adequate funding for archiving into grant awards. Standardised data citation is however still in its infancy and needs to be adopted by the major publishers. On the other hand, research agencies are starting to compel researchers to deposit data, taking into account ethical and IPR issues, as a condition of research funding. Importantly, the funding mechanisms for supporting open access can be a vital part of strategies designed to compel researchers to deposit data. Without such strategies it is likely that the move open access data repositories will be stymied by resistance from researchers.

**Specific challenges**

Specific challenges relate to particular conditions of individual repositories, with the adoption of any funding model having to align to its ethos and position in its life cycle, operating policies, licensing requirements of software adopted. It must also consider who will use the data and how that data will be used. If charging does occur it will need to have a clear, justified and transparent cost model. As way of illustration, we discuss these issues with respect to DRI.

At the time of formulating its future plan with respect to financing its activities the DRI was in year three of a four year programme of development, testing and roll-out. It was therefore at an immature phase with only a pre-launch demonstration version that lacked full functionality to show potential funders and stakeholders. Typically, repositories require core funding until a project is not just complete but has reached maturity, with its value to stakeholders firmly established and can be proven using metrics. Trying to
transfer from core funding to other sources, or even to significantly reduced core funding, is therefore difficult as it requires investors to have faith and trust in a largely unproven endeavour, and exposes it to major risks with respect to sustainability. Moreover, the kinds of data that DRI stores has weak direct commercial value restricting the viability of some potential funding streams.

Moreover, choices made with respect to the technology used and software licences placed limits on the ability to charge for use of the software and also obligated the project to adopt an open source ethos and contribute back to the wider development of such software. In its design and requirements phase DRI took the decision to use a number of open source software components such as Hydra (interface framework), Fedora Commons (core data repository), Apache SOLR (search) and CEPH (preservation), the first three of which are used under an Apache 2 license, the latter a LGPL license. The Apache 2 licence allows DRI to use, modify and re-distribute the code for any purpose with no royalty issues. The LGPL requires any modifications made to the code have to be released under an LGPL (or compatible) licence. The terms of these various open source licences make it difficult, if not impossible, to charge for the software itself. Instead, most business models using such software are built around support services (consultancy, hosting, documentation and training) and development on demand.

DRI is committed to open, free access to data wherever possible, but makes a distinction between access to data and provision of services such as ingestion and preservation services, recognising that it will need to charge for them given that they involve significant time, expertise, labour and resources beyond maintaining core functions. In charging for these services, however, consideration needs to be given to the nature of this charging and whether the model being pursued seeks: profit-maximisation or cost-recovery/partial cost-recovery (Pollock 2009). Given DRI’s mandate to be a public service and serve the public good, profit maximisation is not an option. Without subvention through core funding, partial cost recovery is also not a viable option. It is therefore trammelled into using a full cost recovery model for services, but to do so requires establishing a charging model. Cost models assess the costs of services, factoring in key figures relating to operational areas such as administration; ingestion and validation; format migration; upgrading hardware; retrieval and dissemination of content; and preservation planning. Established cost models for preservation generally align with best practice preservation processes (e.g., OAIS) and quantify the value of services to stakeholders, funders and end-users; justify the repository’s costs in providing these services; and provide transparency and accountability in charging. A number of EU and international projects have developed and published cost models and cost modelling tools aimed at repositories undertaking digital preservation and/or curation. These
tools provide a framework by which costs can be estimated or assessed, and determine either broad projected costs or specific figures, depending on the tool used and the data entered. Some available cost modelling tools and projects include:

- **Cost Model for Digital Preservation**[^8] developed by the Royal Danish Library and the Danish National Archives.
- **Cost Modelling for Sustainable Services**[^9] by California Digital Library/Technology at Berkeley.
- **Digital Preservation for Libraries** (DP4Lib)[^10] developed by the Deutsche Nationalbibliothek.
- **Keeping Research Data Safe**[^11] project led by Charles Beagrie Ltd with funding from JISC.
- **4C: Collaboration to Clarify the Costs of Curation**[^12] EU funded project launched February 2013.
- **Lifecycle Information For E-Literature** (LIFE)[^13] collaborative project undertaken by University College London and the British Library.

Although published cost modelling tools appear to provide generic cost modelling services to repositories, they nearly always require adjustments to cater to specific projects and use-cases. The APARSEN project report on Cost Models for Digital Repositories[^14] maps how the cost parameters generally used in these projects can be assessed against the activities defined by the OAIS model and the International Standard for Trusted Repositories (ISO 16363).

### Risks associated with failing to secure a sustainable funding model

Failing to secure a funding model or to create a robust and transparent cost recovery model puts an open access repository at risk. The most significant risk is that the repository closes because it cannot cover its core costs. Unless its collections can be transferred elsewhere the danger is that significant datasets will be potentially lost, denying access to researchers, students, citizens and companies. Moreover, there will be a loss of human

[^14]: http://www.alliancepermanentaccess.org/wp-content/uploads/downloads/2013/03/APARSEN-REP-D32_1-
resource expertise, stakeholder networks, technical infrastructures, and the legal and policy frameworks developed, and a network of trust will be seriously impaired. Further, it will foreclose any ability of repositories to leverage existing investment through additional research funding or other funding streams. In other words, all of the benefits of the investment to that date will disappear and also cause major reputational damage to those associated with the repository and its original funders.

Rather than closing altogether it might be the case that repository can continue operation but on a reduced basis. For example, enough funding might be secured to run the repository using a skeleton staff, limiting the work it can perform and foregoing additional development work or the addition of new datasets. While this might be a short-term, plug gap solution it will create progressively more harm the longer the arrangement persists. Over time a funding model cannot simply maintain present resources but needs to enable investment in new technologies and platforms to allow data to be migrated as machines come to the end of their operational life, and to take advantage of new software and techniques. Indeed, digital data are highly vulnerable to loss due to obsolescence in software and hardware. As O’Carroll and Webb (2012) note: “While it is possible for anyone to pick up, look at and read a page from a book written 100 years ago, the same would not be true of a floppy disk containing Word Perfect files from 20 years ago.” Without such costs and financial stability, the risk is of ‘digital decay’ and the repository failing to evolve to meet user expectations (Maron 2014). If existing and potential depositors start to become worried that a repository is going to vanish it will undermine trust and faith in the integrity of the repository. At the same time, raising necessary leveraged finance needs to be balanced against the core mission of the repository to avoid drift through ‘following the money’. Digital preservation is a long-term core commitment.
Conclusion

Significant investment is directed at funding research. Such research produces much data and outputs and there is now significant political pressure to make these openly accessible through digital repositories for no cost. While such an aim makes sense in terms of transparency, accountability, and scientific endeavour, there are significant legacy issues to be dealt with regarding existing dissemination models, the funding of those models, and researcher practices. As a result, a number of different open access models have been developed with respect to publications. However, the development of finance models for open access data repositories is lacking. Such repositories are much more demanding to build and maintain than publication repositories given the diversity of the data to be stored and associated standards, protocols, legal obligations, and the need for active curation and management. They are therefore not without significant cost to build and maintain.

In this paper we have sought to document and critically examine 14 different potential funding streams, grouped into six classes (institutional, philanthropy, research, audience, service, volunteer), for open access research data repositories. With the exception of core funding from a state agency, each of these funding streams have associated issues, such as being cyclical, creating new services rather than supporting the core functions, and they undermine the notion of an open, free resource. Moreover, a repository seeking to create sources of income faces a number of challenges, some relatively generic such as austerity and competition with respect to public finances and a reluctance on behalf of researchers to deposit data, and some more specific relating to the choices and decisions made with respect to the ethos of the repository and its technology and software.

The critical issue is that regardless of the various constraints and difficulties open access repositories do need to find ways to fund their activities or they place the collections they hold at significant risk, as well as loss of expertise, trust, stakeholder networks, technical infrastructures, and the legal and policy frameworks developed that have been created at some expense. In formulating a funding model for DRI our strategy has been to create a blended model that seeks to mitigate against cyclical effects across funding streams by seeking income from a number of sources rather than rely on a single one. It is clear from our analysis, however, that a large proportion of the budget will need to continue to be core funding, with other prioritised sources of funding (stakeholder membership fees, built-in costs at source, leveraged research income, philanthropy, pay for...
specialist services, and white-label development/platform licensing) providing a smaller proportion of income. In our business plan, we have this set up on a sliding scale with core funding reducing over time to a ceiling and other funding streams making up the difference.

Whether this business plan is achieved is at present still an open question. Moreover, even if it is accepted, the other funding streams still have to be realised: stakeholders persuaded to pay membership fees, grants to be secured, philanthropists persuaded to donate, and services to be sold. In other words, in the absence of sufficient core funding the struggle to source income will be an ongoing endeavour. Given that other existing national data repositories are funded in such a fashion suggests that this precarious situation will become the norm for many open access repositories, and the degree of insecurity will increase for more localised repositories. This clearly has to be a source of concern as it places open access repositories at risk. As such, whilst the arguments advocating open access are important, just as salient are further debates and models as to how such repositories should be funded. To date, there has been little concerted attention paid to this conundrum and our intention has been to fill in part this lacuna.
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APPENDIX 7 – ACHRC ANNUAL MEETING NOTES
DAY 1

Matt Trinca National Museum of Australia Director  
9.1.2017

- Acknowledgments of indigenous people so important

Relational Museum and its objects

- ARC extends earlier work Chris Gosden 2002-2006 at Pick Rivers, Oxford
- Web of interconnections between museum object and people
- Ideational community equates the above
- Museum preserving the past and a fixity of being in the material world
- Yet the life of things that objects are not reminders of past of human action but actually a more dynamic sets of relations between places, sites and people
- Objects exist between a set of tensions or networks, then those relations should bear some investigation and mapping of network of relations
- Better understand what constitutes an object
- The museum is the site where these objects have a purpose
- Helps us upend conventional views of understanding museums as places which insist upon a hierarchical will to collect and order material of human traces – then the museum seems a place of social engineering (staff stakeholders, communities of users = public more broadly)
- Flow between people and objects flows across time and space and how they continue to act upon people have their own effects.
- Objects express power and not just being acted upon by the people that visit
- The museum denatures object meaning by physically taking objects into its walls...therefore inferring there is a true meaning outside their contextual existence outside of the museum
- Museum creates a whole set of new relations and creates new meanings for objects and broadens their influence in some ways
- Possible of collaboration within and outside the walls of the museum between communities, public, people within the museum
- Rhizomatic relations between the object and the museum and power relations within the museum
- Power is not unidirectional
- Sets of relations in the museum are their greatest asset and to understand them means they are useful in applying them in practice.
- Exhibitions complicates sets of relations by extending connections/introductions/reconnections between communities of origin when It opens exhibitions and makes relations volatile. It means it complicates relations by exposing these objects which enables an agency of the object.

Professor Howard Morphy

- Role of relationships between building the museum and its collections. The network of the people involved
- Pitt Rivers Museum Relational Museum Project
• Links with source communities requires researching the objects
• History of collection dispersal and redistribution separated from archives and in the institutions and different institutions, sometimes categorised as different types of objects
• Get things out of the archives and bring these back together. Hey need to be collated correlated
• These are good reasons to create the narrative
• Few collections are single collections unless it is by one person
• Typically dispersed between different institutions, then enormous budget is required to consolidate it
• Recreating a different collection that relates to the source, then you unpack the collection in different types of ways, the complexity and the relationships are extended
• Links to source communities are relatively autonomous in terms of the work done in museum. Connection with communities is essential to this process eg indigenous communities.
• Source community needs to be defined and explored it is a big part of the research into the museum collections.
• Searchable databases are essential
• The same object came be part of a different collection but then brought together in exhibitions through research projects and aspirations of particular communities
• Conscious versus non-conscious collections
• Over time the value of objects for viewing change
• Building collections people were involved with people of communities in totally different ways
• Anthropologists, missionaries, communities of indigenous people these were relationships that built the collection for the art gallery at NSW.
• An orthopaedic surgeon was also involved in the sourcing the aboriginal art work and got funding to research the effect of 1 leg stand on aboriginal posture to get the money to approach the communities for their art and to purchase it for the galleries in Sydney
• Photographs of researchers in conversation with communities, this si part of the objects and art story in the museum
• Sometimes object moves from the museum to the ceremonies of indigenous Australians. Museums enable these relationships and travels to occur for the object. The conservators permit it to go, so they have to be appeased to permit these inter-relational engagements.
• Ceremonial openings to the exhibitions extend the relations of community to museum objects
• Redocumenting collections (bringing collections together) as part of the contemporary museum culture

Dr Gaye Sculthorpe – British Museum Curator

• “Engaging Objects” at the British Museum and how they could connect with the aboriginal communities today since 1996 with Ian Coates collaboration with ANU and National Museum of Australia
• These objects bring us together and remind us of our intrinsic connection to country
• Looking at the trajectory of the donor, the date of donation, the objects and the narrative behind the donation, bringing together the collection and re-enlivening it
• Following up when find the objects in disparate museums through research students and professors to do further research into them and enliven their story
• Basic information online necessary to source the disparate nature of collections
• Australia better than Britain in terms of online recording
• British collection have objects from places not well represented in the Australian collections
• Everyone in Australia very keen to find their own objects in the British Museums and to track its specific origins and connect it back to people and country

Dr Maria Nugent – Research Fellow ANU

• Contemporary history to tell of engagement of Cook with Indigenous Australia
• Shayne Williams revaluing objects and collections objects such as spears have national significance for people right across country
• New histories of Botany Bay are essential when these key dates in white Australian history arise.
• “Indigenous Australia: Enduring Civilisation” – Captain’s Cook corner 2015, the curation of objects raises new questions around shared histories and unfinished business...
• Encounters Rodney Kelly National Museum of Australia 2016, museum became the stage around politics or return...the shield should remain or return to Botany Bay on behalf of himself and the people. Rodney has pursued claim of return of the shield to make his case in the UK.
• As a historian there are issues behind the scene what is community and how are they formulated and what are they after the exhibition? What are the relationships about interpretations around meanings and role of the shield, how the relations continue after the exhibition closes what are the ongoing dynamic relations?
• Gone back to the material argument to check the relations to imbue meaning and raise questions about the claims that the shield is the correct shield from the event?
• Surprising outcomes from documentation comes from engagement with communities to check documentation rather than the other way around
• Now the object due to the challenge of its role in history has now become an iconic object and wanted to know deeper questions about the one object of the shield with experts about this object.
• This meant local aboriginal people to go to British institutions to see their distributed material/objects they had no knowledge of before.
• This object needs context and with other evidence to illuminate the object in new history and opens up loads of new opportunities which may happen next through these relations
• What is this process and it has not been easy...re: claims for return; what historians understand by shield and its history? Empowered aboriginal young leaders to engage with institutions and understand the politics of engagement and how they could be supported. The museum play a bigger role now this nature of engagement has moved forward.

Dr Robyn MacKenzie ANU Post-doctoral research fellow

• Local identities and place
• With Ian Coates research on Riverina area Wagga Wagga Gundagai Museum
• Small local museums have large collections of stone tools
• Difficult to display they are not necessarily rare or unique
• Not documented in scientific ways but collected by amateurs and their significance not known.
• They state where they have been collected but no anthropological significance understood
• Objects of curiosity but not sure whether they should be collected or not...uncertainty
• If the stone tools are found should they be mentioned would their land be taken re: colonial history.
• Museum at local level has close connection with the local people so their loyalty is to the local people rather than the ANU
• What to do with the stone tools, return them to the indigenous owners
• Local artist raised these issues in recent exhibition in Sydney about all these unclaimed unknown stone tools and they collectively rest with us and how do we steward them into the future?

Questions

• Engaging the knowledge of communities back into Museum catalogues once the relations are realised. Update the database together with Gaye...
• Turning this recent information back into online databases
• Make a piece of work in a collaborative exercise then other relationships occur and other ideas eventuate where other ideas emerge for the personal narratives could occur.
• A rich engagement of ideas occur as a result of these relations.
• What are the protocols around the adoption or meanings or transcultural relations around these relationships or control? Institutions have not dealt with these objects well in the past and each institution should manage its relationships with indigenous communities there needs engagement with communities now. Protocols are too rigid, create a space like workshops which is welcoming and open and solution might surprise both parties at the institutions
• Sacred objects are very difficult to deal with and its about ongoing relationships
• Respect for people to make decisions for their own interests
• Who collected what when in terms of labels is great...

Session 2pm

Australian Academy of the Humanities

HASS Platforms in the National Research Infrastructure Roadmap

• 2016 Roadmap – platforms for humanities, arts and social science (HASS)
• HASS has not benefitted from fed funding ENDCRISS (infrastructure)
• RDS research data services
• ANDS
• RDSI research data services infrastructure
• Explicit engagement of international research infrastructure
• Digital technologies are at the heart of most infrastructure today
• DH will benefit from the roadmap if implemented
• What are the requirements for our discipline? Diverse as we are we need to respond collectively for call for funded projects?
• Drive transformations in the way we discover, access and analyse research?
Dr Kylie Brass Director Policy and Research AAH

- Roadmap May 2016: Govt yet to respond re: 9 priority areas for HASS
- Research sector and GLAM and eResearch sector conversations are trying to join up coming together to present a united front
- A DH archive was advocated by the academy
- Unlocking the collections in research repositories – drive transformations in the way researches discover, access, curate and analyse social and cultural data
- Shift in time research infrastructure and an appreciation for the sorts of ways HASS can contribute like science can to the human good
- Investment planning process through dept of education and dept of industry to respond to roadmap making a case for funding and they have commitment to HASS
- To scope platforms for HASS approached the AAH
- Roadmap of 9 HASSS priorities and 3 main areas of focus – integrated and coordinated HASS platforms; harmonised platforms for indigenous research; harmonised platforms for social sciences
- HASS Platforms Strategic framework
  - 2 implementation plans: Integrated Research Infrastructures for Humanities, Arts and Culture (IRIHAC) and Integrated Research Infrastructure for Social Sciences (IRISS) including costing scenarios low mid high over 10yr horizon
  - Indicative inventory HASS infrastructure landscape model and analysis
  - Overall framework
    - Address research needs and priorities for national scale and collaboratively and strategically
    - (see slides on phone about this)

CEO from NLA

Agency of Objects into GLAM

- What infrastructure can support this in a digital environment.
- NLA heavily involved in this discussion in this space
- Very limited return on investment in terms of intellectual engagement in this space
- Majority of materials held in cultural institutions outside of universities (research sector)
- Collecting born digital content is at the library
- Large file content and storage required
- How we support this research sector non-research sector digital objects and their information? How can we make money for this infrastructures?
- DH is increasingly necessary for future students.
- Infrastructure is more than what goes on at universities.
- TROVE appeals to everyone outside research sector.
- NLA does not research research infrastructure funding until recently June 2020 funding for TROVE finishing.
- Reliable mechanisms for researchers to use large bodies of content and this will not be funded by NLA.
- We need to put new knowledge back into the network.
- Australians in the community who have not benefitted from the NLA
Research infrastructure not for researchers to deliver back to those communities who have been underserved and who are not included in the conversations indigenous Australians and so on,…

IAN DUNCAN Research Data Services

- Data pools around Australia ERSA in SA they also involved in Nectar Cloud
- Data enhanced Virtual Labs; Research Data Clouds; continued infrastructure operations are the 3 main funding streams 2017-2018
- NCRIS Roadmap (see slide)
- Does it include high performance computing?

Challenges for RDS (see slide)

- People putting their data collections on a resource that is not their own requires trust
- Only being sure that the organisation will exist for one more year makes that trust difficult to establish,…
- Changes in the environment
- ANDS/Nectar (virtual labs)/RDS integration – different organisations with difference focus, different management and different styles

So what can RDS do? (see slide)

- What has this highlighted?
- We have some pressing capex questions..(more RDS and Nectar)
- Where can we invest to get maximum return?
  - Skills, training hardware, access services, persistent IDs, FAIR? Virtual Labs?

Dr Tully Barnett Flinders University

- Redefine infrastructure is not boring it is people
- Realignments enabling collaborations
- Funding networks
- Supporting tools and platforms that are people centred and built from humanities approaches
- Nectar funded HONEY
- Cannot always be about information
- It needs to be about maintenance Hail the maintainers
- Funding maintenance strategies
- Longitudinal value has to be recognised that pays of over generations
- How do you measure the value of cultural institutions
- Value beyond limited timescales
- Convince ARC this is essential for funding Digitisation is essential support TROVE think about grant applications where funding goes to the maintainers
- Critical Infrastructure Studies platforms that determine the way study the humanities
- Imagination - imagine themselves into the next generation of researchers and our partners

NLA
Oral histories to be conserved and then you can collaborate on an ARC which can extend the collection forever.

User pays model like TROVE

Overseas infrastructure systems have not separated institutions and research sectors.

DARIA, CLARY, European infrastructure

Expand the concept of the infrastructure/people aswell/enabling infrastructure – “human” network

4.00pm session

www.riversofemotion.org.au

Emotional history of the swan and canny river project

- The documenting of personal histories of the swan and canny river
- Water critical to human survival
- Wetland tributaries are spaces of creation of birthing and initiation and a place of settlement
- Stories, nostalgic recollections and historical enquiries emotions and these understandings differ between cultural groups
- Funding National Trust
- Digital interactive map, web platform
- Key digital platforms determined by symposium outcome held early on
- Rivers landscape and water all as one suggested by elders
- Conceptually strong for all parties and needed to be easily accessible and design of the website is interactive, there were instructions as how to become a member and then upload their memories on an actual map
- Then the result is an interactive emotional river landscape
- Information varied
- Website actively sought archival material and people digitised their own material to upload. European and indigenous memories were uploaded and documented the changes of the river.
- The river archive discuss the developments around the river
- Social memories and social histories and deep histories in addition to academic histories
- The river map gave a spatiality to the research and the integration between river and landscape
- Collaboration was key to the perspectives and methodological approach
- Research around emotions impacted into the public forum and public outreach
- www.historyofemotions.org.au
- Extended reconnection with cultural aspects of landscapes.
- This research connects into the arts space through the ZEST Festival in Western Aust
- Europeans shaped our landscapes and interactions into the indigenous landscapes...this may be useful for Coorong project??
- Act of recording and uploading the data and engaging with multisensory website water sounds and videos is a form of emotional practices
- Shifts dominant understandings of colonial power relations
- The lived experience and people element is a key category for analysis
• An archive for the future
• Address issues of environmental degradation like the dying of dolphins in the river that interweaves the past and the present and this was affecting the persons connection with the river for some time.
• The rivers tell us about ourselves and the environment and others and connect us to the past.

Dr GINA PICKERING DIRECTOR LATITUDE SERVICES

• Emotional histories stimulate the rethinking of cultural elements such as the river
• Education resources embedded in curriculum and wrapped around map, documentary, and the book, then children are asked about their emotional response to the river and people like Fanny Balbuk Yooreel.

Check with Tully re: Rachael Ellery ??? from University of Western Sydney on mobile technology research in remote areas....

Mitchell Whitelaw’s work on the Murray River called Drifter using sound scapes with TROVE archives?

Funding website of this archival project is no longer funded...the project stops and then budget cuts the website goes down and the archive lost.

DAY 2

National Gallery of Australia – what’s in it for us re: ARC funding...

New critique

New Environments New initiatives, supported by gvt agencies philanthropy (ARC AHRC Mellon Getty connecting art histories project etc)

Rise of the mega museum as a vital driver of cultural com, community economic change

Enagement becoming vital to academia, research increasingly vital to museums

Eg of the other GLAM sectors - flagship successes like Old Bailey Archives Project www.oldbailey...

Discovery, Engagement (draw communities into the environment), Learning (we are all doing this what is this going to be full scope of learning to specialist lab), Ideas (stand by ideas when you move between the work environments of gallery and the university), Grants, Hospitality (Clark, Ghetty long-term fellowship projects enduring relationships), Technologies (shared)

National Gallery of Singapore...project connecting with understanding the region in new ways Southeast Asia, early career scholars coming together – Power, still publishes and does not make money but peer-reviewed work supported in this environment and seen as crucial).

Employment very expensive...people need to work between and amongst both kinds of institution eg galleries and university
Arts and humanities Research Council

New Generation Thinkers 2018 – bring their stuff to the public and they are sponsored to talk about their work to the public and collaborate with the media in good ways to connect public to the larger sphere

**Versailles Treasures from the Palace – NGA Dr Lucina Ward**

Collaborations are now Canberra only in the amazing experience and the role of blockbusters and these are only done once.

Gave a sense of the physical essence of the Versailles with the day to day people eg servants

The art evoked the space

This collaboration came about through key people the ambassador to France began the conversation.

YouTube channel, 2 views so you can see speaker and slides, materials of courses in the future, conference video recording online

Live streaming of conference via youtube channel

Student review publication

Record paper before-hand and skype in external people for questions

Media through podcasts, digital media, science communications should have HASS communications that need to extend into the co-creative challenge

There is not enough time for skills and content in courses for undergraduates…the flexibility of the institution is important in the teaching sphere

Connecting between teaching and research are essential.

**Dr ANDREW YIP CULTURAL COLLABORATION IN A VIRTUAL WORLD**

**UNSW**

- Think critically about collaborations across sectors
- Public relations side how we demonstrate the information to the public
- No public intellectual in art history since Robert Hughes...we need a public figure

ICinema Centre of Interactive Cinema Research crosses 4 faculties

Research Areas:

- Interactive aesthetics,
- intelligent environments,
- immersive visualisation;
- for cultural heritage practices,
- performance studies, ADA completely immersive so you can use your body as interactive device, body tracking and reconstruct space

Projects:
• iBauprobe immersive theatre design environment for the Sydney theatre company and NAIDA can be a tool or
• iLLE – build for researchers that can be for students and visualise and share in network immersive environment. No coding skills required.
• Sid Nolan’s eg
• Living in virtual world Hayden Fowler in cage and with dingo interactions
• Immersive archaeology the GLAC Project working with the USyd..rediscovering the living archive as uncovering

Non-boolean method for searching artworks in a double helix, search through curiosity and serendipidity than should let you mind wander to draw connections.

Scanlines immersive 3D data browser

• Change cultural heritage materials and liberate materials form ivory tower and democratise the access to knowledge and reengage the ways we engage with heritage
• Novel technologies are not novelties
• 4yr old completes interaction where he does not have embodied knowledge.
• Stop thinking of the virtual and digital like this we need to be more sophisticated not technologies we are building a new potential for interactions and engagement and bedrock experiences we are already comfortable with these experiences that occurs in museums but these are human behavioural facilitators for creative practice
• Value of real object and engagement with the replica and this engagement is delivered to a huge audience which is not a betrayal of the museum but a democratisation of knowledge, open cultural collections

Models for successful collaborative projects 1. Research innovation

1. UNSW new paradigms for embodied design, study new UX workflows for industry partners and new models for Artificial intelligence architectures...your body could be drafting an arch and the AI asks if you want to draw an arch. STC get a new immersive design tool; then they get a living design history for analysis and exhibition; Industry outcome – new mixed reality performance spaces; re-evaluated professional workflows that favour collaborative design

2. iLLE project -software system for a virtual world and deployed in 3 faculties in medicine for the creation of a skull, then archaeology making a virtual fieldtrip and they reconstructed the pilbarra region thru drone photogrammetry and evaluated it through “I show you”

3. Cultural heritage and public engagement huge collaboration through 9 universities and museums and an augmented reality tracking with infrared cameras (Museum communication book) magical and meant physical and temporal transportation. Chinese exhibition with AR

Node based hierarchies (see slide)

• Enmeshed and constantly changing from multiple experts. Eg of the painting...scientist for particles of painting (particle physicist) this reveals new aspects of the painting of what’s underneath; hidden intent new knowledge what does this mean new insight what does this enable us to think about the world and what does the artist want us to think, this could have
materials science outcomes, this could produce completely new outputs this approach involves everyone working together and new outcomes eventuate. Andrew created this VR experience where you can peer into the painting and the gaze activated thing where the eyes reveal the layers of the painting and scattered materials around the room reveal the additional information. (see slide)

- Building future skills and networks (see slide)

Andrewyip.org

Andrew.yip@unsw.edu.au

Questions

- Annemarie from national archives – the software does not permit the investigations AY is talking about? What can GLAM do about this?
- Boolean necessary is useful and collecting knowledge
- Structure of metadata – build new ways of interrogating boolean systems by rethinking metadata the more interesting links than can be made based on social histories aspect. New ways of thinking about data and how to make connections...
- Ways of searching collections eg Coopy Huer you can use a paint-dropper way of searching eg this way of browsing connections between relationships the way objects are structured
- Open up the agency to other professionals to give their expertise
- Old humanities need to be disseminated through contemporary technologies (Jennifer Rutherford)

Dr Jason Ensor (Western Sydney University)

- Libraries are the bridge between researchers and data and the production of new knowledge and the mobilisation of the cultural record DH 2015 Global Digital Humanities (see slide) ARCHivER

NLA Kevin Bradley

- See NLA “Australian Lives” book can listen to audio book and brings to life the book through small podcast of the interest in sections in the work.

Dr Kiera Lindsay

- Note: Museum of Discovery opening in 2018
- Where is the access to the people Kiera spoke to in GLAM sector?
- Digital online course

Dr Kristi Kokegei History SA

Beyond digitisation

Affecting cultural change within the organisation and galleries and thinking beyond the normal exhibition model? Interesting as usually curation you would think to embrace change.
APPENDIX 8 – CI COLLEAGUE’S BLOG NOTES
Stumbling upon ‘Digital Humanities Down Under’

The Digital Humanities Research Group, founded in 2013 at the Western Sydney University hosts an annual Digital Humanities Workshop called Digital Humanities Down Under. Through the generosity of the School of Creative Industries at UniSA, I was lucky enough to attend the 2017 Workshop. For those of you who know very little about the digital humanities and for of you who already know much more, I would highly recommend it. The intensive sessions can be chosen according to interest and on offer are introductory sessions about what the digital humanities and what its strengths are all the way through to advanced coding, with exposure to innovative interdisciplinary examples of research and teaching projects along the way.

As an academic and humanities scholar who has long dabbled in the digital without knowing exactly what the digital humanities was, I found myself in very good company. At the workshop I found myself one of a motley crew of academics teachers and researchers, students, librarians and members of state governments – from as far afield as the Visual Arts, Maths, Media and Cultural Studies, Economics, Engineering, Computing, Linguistics, Sociology, Indigenous Studies and Literary Studies. All were drawn together by with an interest in the using the digital in some way either for teaching or the visual presentation of their (qualitative or quantitative) data in a humanities context.

The workshop was organised into streams with titles like: ‘linked data, digital ethnography and social network mapping and analysis, coding and intro to programming’ and as the week progressed these began to gather meaning for me as colleagues from the University of Newcastle, the Australian National University, and the University of Victoria in Canada began to explain their work in the digital humanities. I learnt that it is easier than I thought to write bits of HTML code in order to get one’s data to be displayed in a more visually striking way. But I also learnt that free visualisation software such as Gephi is already there to use to make scatter plots, graphs and networks out of our social science data that not only looks prettier than a table or questionnaire code but enables us to make connections between data points when it is displayed in this way, that we would just not have been able to do before.

We heard about projects that used digital software to: display data with animated graphs (see Fig 1 below), to create virtual reality immersive experiences of research findings (see Fig 2 below) and to visually map the incidences of phenomena across the globe (see Fig 3 below).
One of the project’s presented at the workshop that probably dovetailed best with my own research and teaching interests in visual culture and mobile learning was some work of Dr Jenna Condie. She is a critical, social psychologist and qualitative digital research methods lecturer at the Western Sydney University who is using location-aware mobile apps (such as the Tinder dating app) to track the movement and interactions of people along the Arab-Israeli Border. As she says “when the ‘field’ is an app on your phone that is in your hand”... “every place else you go, the rules of research need rewriting” (Condie 2017, n.p.). This workshop considered the theoretical, methodological, and ethical implications of using location-aware mobile dating apps in research.

Researchers and teachers in Linguists, Literary Studies and Literary Historians were also strikingly visible – they seem to have used the digital humanities as a place to remake themselves and claim and map new territory in their fields. One such person was the presenter Prof Ray Siemens, a literary scholar with wide-ranging expertise in English renaissance texts, but who combines this know-how with an extensive repertoire of digital research methods. He is Distinguished Professor in English in the Faculty of Humanities at the University of Victoria in Canada and holds a cross appointment in Computer Science. This is the kind of crossing of discipline boundaries that the digital humanities makes possible. He also heads up the Electronic Textual Cultures Lab (http://etcl.uvic.ca/). This active research group is full of reinvented medievalists who use innovative digital methods in their research and teaching. An example of one of their projects is the digitisation of early printed books, and documents that existed only in single or few copies and which have now been scanned for archival purposes but also for access to the materials that might not otherwise have been possible. At the workshop, Prof Siemens’ presentation was entitled ‘Understanding and engaging knowledge in a social context’ and in it he introduced us to a useful way of mapping the methodological commons used across disparate disciplines in the humanities to enable rigorous and creative interdisciplinarily. If you have a look at his diagram in Fig 4. below you will see that the digital humanities approach makes all kinds of data more readable and accessible to those not having specific and often technical disciplinary expertise. This palpably supports scholars from many different disciplines being able to access and interpret a far larger and more disparate data pool and to use their disciplinary expertise to work on it together. This is because through the digital humanities people are really able to see other people’s data and link it to their own, leading to new and fruitful associations and collaborations.
Whilst the digital humanities started out sounding like an oxymoron to me, after the workshop I was left with a profound sense of a space where old things have been taken apart and put back together in a new way that really propels the boundaries of knowledge in the humanities beyond where they could have gone before.

In the digital humanities, the strength of the humanities in thinking through meta approaches, critically analysing research questions and including values of social justice is brought to bear upon detailed data sets that are then able to be used and re-sued by different people, in different projects in service of truly trans disciplinary knowledge building.

Although the Western Sydney University is most active in this space through its presence in the Digital Humanities research group who host this workshop, UniSA is also powering ahead in this space, so now might be a great time to join in if you have not done this already. The inclusive and open approach that the digital humanities currently provides to support the work of one’s colleagues whilst also linking one’s own work to theirs is also thoroughly appealing. That is one of the reasons why I have tried to showcase the names and projects of colleagues working in this space.
Dr Rachel Hendery, a linguist and the first ever lecturer in digital humanities in Australia was one of the organisers of ‘DH down under’ and she was also recently a keynote speaker at the DH Symposium ‘Ways of seeing: critical, digital, spatial symposium & exhibition’ organised by Dr Julie Nichols - an architect specialising in urban history, theory and design - from UniSA AAD that was held in February this year. As you know, UniSA will be hosting another DH conference, the Australasian Association for Digital Humanities, DHA 2018, which will take place at UniSA CW on 25 – 28 September 2018. You also probably already know about our very own Ben Stubbs’ work in the digital humanities, teaching his students to make virtual reality narratives. A list of people involved in DH at UniSA is evolving and is included here to help provide colleagues further points of contact in the digital humanities. XXX

For me this workshop opened up the digital humanities space as a place where my own teaching and research interests might be stream-lined as I design location-based-mobile-learning-games for my students and as I continue to analyse and interpret images in my studies of visual research methods and visual culture. Questions that the workshop stimulated and that I walked away with are how the emphasis on the visual can be broadened to include those robust parts of our realities in the humanities that are not seen. I also wondered whether this can be done, in part by configuring the visual in such a way as to also evoke our other senses and so help us continue to do better what the humanities does well, share new visions and virtually reach out and touch the experiences of others.
APPENDIX 9 – EXHIBITION
EXHIBITION OF CREATIVE WORKS
WAYS OF SEEING:
CRITICAL, DIGITAL, SPATIAL

NEW: CALL FOR CREATIVE WORKS
16 February 2018
8.30am-5.00pm
EASS Digital Humanities Symposium + Exhibition
Bradley Forum, Hawke Building, The University of South Australia, Adelaide.

abstracted: vernacular space
image source: James Wilson UniSA DH project 2017
This symposium aims to investigate the opportunities “critical digital humanities” might offer for the fields of employing creative practices in design and the spatial humanities. Degrees of criticality could occur around the terms themselves – for example, “digital” presents opportunities to revisit ways of “seeing” knowledge through software and computational tools – or through the design of the interface for access to discovering, searching, as well as sustaining and disseminating information. What new research questions may be conceived through multi-modal forms of engagement with research data? How can we open up our understanding of the spatial through the application of digital tools, platforms and datasets?

Ways of seeing and representing knowledge using datasets of multi-modal forms can be seen as a knowledge building initiative. This way of seeing the world as a “direct experience of reality” is mostly a multi-sensorial response. It also prompts the “inadvertent gaze” or ineffable which involves the mind attempting to have new experiences, therefore the rational mind and the inadvertent gaze are interdependent.

The premise here is that virtual immersion presupposes another way of interrogating the research subject/object. Research questions in qualitative research in the social sciences come from multiple sources and motivations, visual analyses/observations represent some of them. Visual observations may also translate to investigating non-tangible aspects of a particular environment and culture. The visual is therefore essential in “knowing” the subject matter and how to investigate it. How is the digitisation and dissemination of multiple knowledges impacting creative industries, cultural and research institutions and socio-cultural practices? Is digitisation offering new opportunities?

1 Stephen Hirtenstein’s presentation at ‘Nazar: Ways of Seeing,” CAMEA Symposium, University of Adelaide, October 2017.
2 Visual culture is wedded to the idea that immersion comes from narrative as opposed to database structures/ways of organising and building knowledge. Therefore, the immersion through narrative underpins the interpretive process/the subjective and the unknown is included in the construction of knowledge from the outset, this may also be the case for literature and film. Jeanne-Marie Viljoen 15.10.17
This exhibition committee invites a re-conceptualising of digital processes in creative works. Please provide intent to exhibit 3D or 2D physical analogue or digital forms or animative proposals with 100 word abstracts for exhibition in conjunction with the Symposium. How are the following thematic ideas expressed in your practices?

1. **Spatial Practice** [conceptual, virtual + material]: interactions with knowledge sets as having, or requiring, spatial practice. The virtual environment leads to particular ways of thinking. How might we release knowledge from the paradigm of static databases to dynamic and interactive fields of relations which prompt new ways of seeing, discovering, accessing an ontological understanding of the humanities to influence and impact upon the diversity of worldviews? How might digitally immersive and virtual practices change the way we interrogate knowledge through making? Does finding alternative ways of “seeing” and “knowing” subject matter motivate different types of creative outputs?

2. **Critical digital humanities** [theoretical + philosophical]: This concept has been proposed in a recent publication by David Mark Berry et al. 2017 “Computation is a historical phenomenon and can be traced and periodised through historicisation, but more work is needed here. Ignoring the hegemony of computational concepts and methods leads to a dangerous assumption, as it is a short step towards new forms of control, myth and limited forms of computational rationality.” A discussion of these ideas is proposed to consider what critical digital humanities conceptually offers as a field of scholarship and a mapping of the challenges involved? What are the intersections between the digital as a concept and humanist scholarship now and how do these influence creative works? To what extent can the revisiting of the field present new possibilities and new knowledge building opportunities and impact in a post-digital world?

3. **Maintaining and sustaining** [operational + structural]: Emphasis in the digital humanities is sometimes placed on the conceptualisation of the field of research, its impact as a part of the academy, rather than on the maintenance of digital systems/platforms/databases/projects over time.

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How might we consider long-term strategies around the maintenance of digital humanities projects? How are these initiatives valued in cultural and research institutions? How does working between analogue and digital representations create a coherent form of knowledge building?

Guidelines: Preparation of Abstracts + Creative Works Proposal

Please submit abstracts of 100 words, accompanied by up to five key words. Indicate in which form your exhibited work will be eg. 2D/3D/digital, physical printed. High Res requirements for A2 sized print. Onscreen resolution for digital images. Animatics limited to 1 minute in length. Further queries please see Mr Chris Burns’ contact details below.

Please provide brief biographical details of 100 words on another sheet. On the Cover Sheet please include abstract title + work, name of author, affiliation and full contact details, including email.

Please submit all abstract + creative work proposals (3D or 2D) and biographical details to Mr Chris Burns by 16 January 2018: chris.burns@unisa.edu.au

Abstract acceptance announced by 23 January 2018.

Deadlines:

1. Call for abstracts/creative works proposals 21 December 2017
2. Abstract/proposal submission 20 January 2018
3. Work acceptance 23 January 2018
4. Exhibition 16 February 2018

Note: we hope to publish creative works and abstracts as part of a consolidation of outputs from the symposium. Full address of Symposium:

Level 5 Bradley Forum, Hawke Building, City West Campus, University of South Australia.