Quinkan Matchbox: experiences and lessons

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Summary

• Australian Research Council Projects
• Quinkan Country
• Matchbox system development
• Metadata research
• Matchbox project research
ARC Projects

• ARC pure research
• ARC applied research/industry research
  - Telecentra Project (1999-2000)
  - Quinkan Matchbox Project (2001-2004)
Matchbox Development

Develop a ready-to-use, integrated, multimedia cataloguing, maintenance and search facility:

- Document the process
- Develop suitable security and discovery/filter applications
- Produce prototype, inter-operable QDC metadata using Resource Description Framework (RDF) format
- Re-conceptualise the traditional model of cataloguing, maintenance and searching established by subject gateways in the 1990's to provide a rich cultural catalogue and collection process.
Matchbox Research

• Develop a Qualified Dublin Core (QDC) compliant schema for indigenous cultural resources
• Develop a customised cultural data management system
• Recognise different cultural perspectives and different knowledge systems
• Enable distributed users to classify and discover their cultural resources on the Internet
• Investigate new ways of recording cultural knowledge
• Provide the Quinkan Trustees with a system, and
• Create intellectual property in the content of Quinkan Matchbox with ownership by and for the Quinkan Trustees (or agents)
Quinkan Country
Quinkan Country
Quinkan Culture

Images from the Laura Booklet published by the Ang-gnarra Corporation
Quinkan Region

- People were here more than 36,000 years ago
- The community has been ravaged in the last 200 years
  and so has the culture
- 60 people remain
- 290 km from the nearest city
- but the 100,000 Rock Art paintings are in excellent condition.
Matchbox Requirements
Who are the users?

• Academics with disciplined knowledge - because they will contribute resources
• Tourists with experiences - because they are interpreting Quinkan Culture
• Elders and Community members - because it is their Culture
• and more....
How do they think...

Structure and rules

???????
Diverse Users

• Explicit disciplines
  - Formal vocabularies, structures and rules

• Implicit disciplines
  - Intuitive procedures, vocabularies and structures ....
What are the resources?

All types of things
• paintings, people, places, reports, photos, ...
• from Elders, archaeologists, ...
• about subjects of all kinds
• in all sorts of forms...
What functions do we need?

• Discover resources or services
• Graze resources and services
• Add a resource or catalogue record
• Annotate a resource or record
• Import/export resources and records
• Use a service eg get permit to go to XX
A really good system is

- immediately comprehensible and yet ‘grows’ with use;
- acts on behalf of the user, and
- is suitable for / adapts to the user’s purposes

Andy di Sessa (Boxer)
The Matchbox System
Quinkan Matchbox - the system

- Pittwater is underlying system with the functionality
- Matchbox is the application layer
- AnnoSource provides the annotation layer
Pittwater Architecture

- Digital repository
- Open source software and PHP and JAVA etc.
- XML documents for metadata schema, templates, etc.
- XSLT for style sheets, transformations of schema, etc.
- Lucene for search, taxonomies etc..
- Annotea and Amaya for annotations
Pittwater Functions

• Content creation and rendering
• Cataloguing and discovery
• Catalogue import and export
Web page design

For automatic rendering from the database, page templates need to be designed and stored in XML.
• User accesses online data entry form
• And uploads text, images, video, etc
• And creates metadata
Content Creation

• Content stored as assets
• Described with metadata
• Associated with templates
• Used for discovery and content rendering
Please complete and return to QHTN for construction of web pages about your enterprise.

Select template to be used:

Choose text to be included: [Browse...]
Choose image to be included: [Browse...]
Choose second image: [Browse...]
Choose video: [Browse...]

Complete the following catalogue record:

Title of Business:
Operators of business:
Please complete and press 'Submit' to return to QHTN for inclusion in the catalogue of web pages about Tropical North Queensland or the Queensland Heritage Trails.

URL (address) of site to be included:

Title of site (the name of the window):

Site authors: _____________ Another author

Description of the site's content (50 words):

Publishers: _____________ Another publisher's name

Location of publishers: **Tropical North Queensland**

Address of business:

Location of tourist attraction on Queensland Map version K7643876 (eg K45):

Type of business (choose from the following):

- accommodation
- transport
- event
Matchbox Publication

Options

Low-bandwidth
Touch screen facility

Matchbox

Good-bandwidth
Touch screen version ‘online’ via web

Web version of site for subject expert

Standard Web version of site
Import/Export metadata

- Develop cross-walk
- Create XSLT
- Import/export records
Metadata Exchange

- E.g. Picture Australia database of images of FNQ locations
- Matchbox database and catalogue system
- E.g. QLD EPA Regional Database
- Schema transformation application
Searching and Browsing

Once the catalogue has been populated, entries can be used for searches or for browsing

- Note that most users search when they know what they want but browse when they are still unsure - and so most do both when looking for something with which they are not familiar.

- Matchbox uses the catalogue hierarchy for 'inverse browsing'.
Welcome to the QHTN Gateway

Look for:

- bungy jumping
- entire catalogue
- See subject headings or See resources

Click on a heading below to browse lower level headings

- Reef Activities
  - snorkelling, diving, sailing,
- Sports
  - bungy-jumping, orienteering, mountain climbing, diving
- Pre-history
  - paleontology, rock art
- the Tablelands
  - water sports, hiking, tourism, hot-air balloons
- Bird Watching
  - instruction, hides, photography
- Rain Forest Activities
  - canopy walk, night walk
- the Outback
  - camping, fishing, riding
- 4 Wheel driving
  - bush tracks, sand tracks
- Studying in the Tropics
  - James Cook University
  - TAFF, learning English
### Advanced Search

#### Search

<table>
<thead>
<tr>
<th><strong>for keywords</strong></th>
<th>horse-riding</th>
<th>and</th>
<th>rain forest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>and</strong> for activity location including words</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>and</strong> for Tour Company's name</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>and</strong> for Tour Company's address</td>
<td></td>
<td></td>
<td>Cairns (pick one)</td>
</tr>
<tr>
<td><strong>and</strong> for availability</td>
<td></td>
<td></td>
<td>daily</td>
</tr>
<tr>
<td><strong>and</strong> for keywords in Description</td>
<td></td>
<td></td>
<td>beginners guide</td>
</tr>
<tr>
<td><strong>and</strong> after</td>
<td>25 / 06 / 2002</td>
<td>(yyyy/mm/dd)</td>
<td></td>
</tr>
<tr>
<td><strong>and</strong> on or before</td>
<td>25 / 07 / 2002</td>
<td>(yyyy/mm/dd)</td>
<td></td>
</tr>
<tr>
<td><strong>and</strong> for format of</td>
<td>text - HTML</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>and</strong> for resource type of</td>
<td>text</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>and</strong> for language</td>
<td>EN</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>and</strong> for rights to resource including</td>
<td>no charge</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Search Results

We found 18 resources.

1. ANIMAL > MAMMAL > HORSE > HORSE CARE
   Tablelands Horse Centre
   URL: members.tripod.com/~lillegems/index.html
   Last modified 28-May-99 - page size 15K - in English
   See catalogue entry | See other similar resources

2. SPORT > HORSES > EQUESTRIAN
   Bedarra Island giant horse trails
   We've compiled documents containing the most Frequently Asked Questions (FAQs) about every major horse topic. These FAQs are just a starting point.
   URL: www.rabbit.org/faq/index.html
   Last modified 30-May-99 - page size 8K - in English
   See catalogue entry | See other similar resources

3. SPORT > HORSES > RACING
   FAQs about Racing in the Tropics
   Whether you're new to the world of horses, or an old timer, Tropical Horses Only covers all topics of interest to the racing enthusiast. Whether you're a...
   URL: www.rabbit.org/
   Last modified 26-May-99 - page size 10K - in English
   See catalogue entry | See other similar resources

Result Pages: 1 2 3  [Next >>]
### Accessibility

<table>
<thead>
<tr>
<th>The Commonwealth and State requirements.</th>
<th>Australian legislation demands web sites are accessible to all - satisfying the W3C Web Content Accessibility Guidelines.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How is it relevant to Matchbox?</td>
<td>When sites are made with Cwth funding, there are no excuses for lack of accessibility. Qld govt requires compliance.</td>
</tr>
<tr>
<td>How is compliance achieved?</td>
<td>Compliance with standards is achieved by adopting design and implementation techniques.</td>
</tr>
<tr>
<td>What are the costs / benefits?</td>
<td>Compliance makes content accessible on all devices including phones, Palm Pilots, web screens and Braille devices. Cost is in better planning, practices, correct techniques - not significant.</td>
</tr>
</tbody>
</table>
Development Lessons

- Many to do with the development team...
- Technical problems with XML
  - XML lacked structure and flexibility
  - --> new UML profile (Sarah’s work)
  - --> separate annotation system (Behzad’s work)
- Development failings --> Metadata problems
  - Problems with testing metadata profile
  - Problems with doing project research
The Metadata Profile
(Work of Sophie Lissonnet)
What are the resources?

All types of things to be classified by
- type
- discipline
- location
- full-text indexing
- usage ????????????
What is the **organising** factor among them?

- Should we organise around a place?
- a collection?
- people?
- interpretations?
- events?
- research?
- history?
- archaeology?
- traditional practices?
Can we support the Elders,
and academics?
Can we provide for new stories?
Dublin Core Simple vs Qualified

• Five years before CIMI investigated the use of DC and found it wanting for museum purposes

• Would Qualified Dublin Core work better?
Metadata Goals

- Global interoperability and local specificity
- Supportive of many different sets of 'local specificity'
- Global interoperability across sectors and domains
- Metadata to be used for more than just discovery
Digital Collective Model

• The Quinkan Matchbox system is inspired by the Digital Collective model which encourages organisations and individuals alike to enter into partnerships with communities, and contribute physical and digital materials and their descriptions to a locally managed system.

• Holland, M., & Smith, K. (1999). Broadening access to Native American collections via the Internet, 2002
Aggregate, Rationalise, Harmonise

• Collect elements and analyse their use and variations
• Rationalise similarities & differences
• Harmonise remaining inconsistencies
CIMI Findings in 2000

• DC too focused on digital resources
• Too 'bibliographic'
• Too reliant on the 'dumb-down' principle for inter-operability
People descriptions

- Museums very interested in people
- Museums need qualifiers for roles
  - Archaeological team, local resident, park ranger, ...
- Use of MARC List of Relators and Roles
Biographical information

• In cultural domain, biographies matter
• CDWA recognises extrinsic info like this
• J Paul Getty Trust has list of 255,000 artists with biog and bibliog info….
• DC orientation towards business roles not useful …. 
Type

• Important difference between original vs surrogate resources, cultural vs natural, work vs images, ...

• Quinkan Matchbox uses work and image because Quinkan culture does not distinguish between natural and cultural

Date and Coverage

- Australian archaeological periods unique
- Precise dating is unexpected
- Difference between ‘immigrant’ and Indigenous interest in dates
- 5 seasons per year
- Some events are cyclical some dated
Subject and Keywords

- LCSH, eg, not appropriate
- Aborigines classified anthropologically
- LCSH terms are prejudicial
- Australian terms are unique:
Language

• ISO 639-2 does not include Australian languages
• Spellings of Oz languages not fixed - sometimes 60 different spellings
• There is an Australian typology but not available ....
Metadata lessons

• DC still too focused on resources but
• QDC much easier to use than DC simple
• In particular, need for descriptions of people, places and events
• DC good for extension and so local specificity
• Interoperability still being tested...
'Stretch' Use cases

• Example 1 - supporting interpretation
• Example 2 - supporting interactivity
• Example 3 - graphical cataloguing
• Example 4 - annotations and annotations of annotations
Example One

"A lot of paintings are made in red."
Example Two

• When Aboriginal people meet, they greet each other with lengthy descriptions of their identity and family connections.
• Tom adds his photo.
• Mary adds her photo.
• The relationship between them is in the metadata (dc:subject and dc:description) but it is not operational.
English representations

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.
Example Three

- Aboriginal descriptions of country.....
Graphical cataloguing

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

and lots more.....
Example Four

- User self-identifies as:
  - interested in cultural view
  - not keen to see images of recently dead ancestors
  - needing screen reader (illiterate)

- System matches resources to user’s needs and preferences
Matching Users - Access4All

• User accessibility needs profile:
  - Control, display, content

• Resource accessibility characteristics:
  - DC Accessibility term
  - http://dublincore.org/groups/accessibility
Matching Users with SWeb

Aboriginal Community
TRIBE A

Aboriginal Community
TRIBE B

Aboriginal Elder
TRIBE A

Aboriginal Elder
TRIBE B

Annotated Rockart painting – ‘Imjim’

Domain Experts – Archaeologists, Anthropologists etc.

Relationships

Intrpt

Intrpt

Intrpt, Notes, info.
Metadata evolution

- If metadata is in the object, first photo does not know about second photo.
- If metadata is available, metadata can link the two objects (photos).
- If metadata is available and structure is clear, applications can link content.
- If metadata is structured appropriately, apps. can mix-and-match content easily.
Metadata evolution

- We are abstracting the semantics from the management ...
- so we can play with the semantics...
- We have a Web of content with discovery, content rendering to order ...
- Now we are building a semantic Web.
Conclusion

• We are beginning to feel that we are able to offer tools that will work for people.
• We have a sense of communication between ourselves and the system we are building.
• We believe this communication will be useful, understandable and the system will act as the Community’s agent.
Thank you

Presentation is available at
http://www.sunriseresearch.org/presentations/20050127/

Matchbox Application profile is available at
http://www.sunriseresearch.org/presentations/20050127/map.html