


# Media Asset Retrieval Systems

session sponsored by SIGs: VIS & CR

1. Asset Management for Public Broadcasting: An Overview. **Alison White**, 
2. Work Domain Analysis of Public Broadcasters. **Efthimis N. Efthimiadis & Jens-Erik Mai, UW**
3. The Public Broadcasting Metadata Dictionary Project: Process & Preliminary Recommendations. **Paul E. Burrows, Univ. of Utah**



# Work Domain Analysis of Public Broadcasters

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The Information School  
University of Washington





# Agenda

- Background
  - Convergence Consortium
    - MARS
- Current State of accessing broadcast
  - KCTS, KUOW
- Goals & Objectives
- Methodology
  - Cognitive Work Analysis
- Results
- Deliverables
- Future work



# Background

- **Convergence Consortium:**
  - Public broadcasters
  - Public libraries
  - Public schools
  - Information School, University of Washington
  - Museums
  - Local Government
  - Environmental organizations
  - Community organizations
- **Vision:**
  - connect information, people, & technology
  - tap into the social capital of the Puget Sound Region to provide systems and services to the public.
- **Goal**
  - MARS project: Online resource that gives access to content from public TV and Radio

Convergence Conc connects information, people, and technology ; brings together partners from

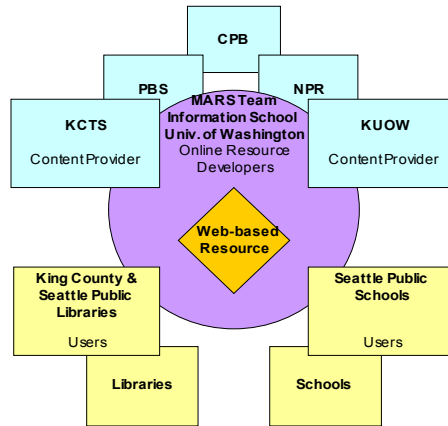
taps into the social capital of the Puget Sound Region to provide systems and services to the public.

Online resource that gives access to content from public TV and Radio



# MARS Partners

- Corporation for Public Broadcasting (CPB) (funding agency)
- KCTS (TV station)
- KUOW (radio station)
- Seattle Public Schools
- Seattle Public Library
- King County Library
- The Information School, UW





## Current Situation @ KCTS

- Produce shows for local & national broadcast
- Archive in tape library
  - Poorly & inconsistently organized
- Stream some broadcasts
  - Not indexed
  - Not searchable
- Raw (stock) footage
  - Indexed and annotated by interns
  - No controlled vocabularies
  - No indexing guidelines

# KCTS Search

Image Browse - Microsoft Internet Explorer  
 Address: http://www.kctsd.com/imagebrowse/

**KCTS**  
 THE PUBLIC NETWORK

STOCK FOOTAGE

Found 208 items. Search Result(s): 1 2 3 4 5 6 7 8 9 Next >>

mount Rainier  
 AND  OR  
 Search

Barcode	Picture	Type	Subject Description (Proper Nouns)	Subject Description (General)	Year
<a href="#">Show Clips 5332</a>		RATM-002	Mount Rainier National Park Washington	A patient person will watch the clouds float from one end of Heaven to the other, and thank the cameraman for capturing this long, steady shot of beauty.	1990
<a href="#">Show Clips 5333</a>		RATM-002	Mount Rainier National Park Washington	A dilapidated barn rots in the snow, as the camera sweeps the mountain range which lies behind it.	1990
<a href="#">Show Clips 5334</a>		RATM-002	Tatoosh Mount Rainier National Park Washington	Like the noses of the planet, mountains jut out from the surface of the Earth against an evening sky.	1990
<a href="#">Show Clips 5335</a>		RATM-002	Mount Rainier National Park Washington	A plethora of green trees, that sometimes sway in the wind.	1990
<a href="#">Show Clips 5336</a>		RATM-002	Mount Rainier National Park Washington	Mountain rocks glisten as fresh water flows over them.	1990
<a href="#">Show Clips 5337</a>		RATM-002	Mount Rainier National Park Washington	A mountain river flowing over smooth rocks.	1990
<a href="#">Show Clips</a>		RATM-	Mount Rainier National Park	Snow like fur insulates the forest floor and hides it from the huming cold of a	

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## Current Situation @ KUOW

- Provide access to their local produced broadcasts on their website
  - No controlled vocabulary
  - Input by a staff member
  - Poor search mechanism
    - hidden 3 layers down
    - string match only



# KUOW Search

94.9 KUOW: Seattle's NPR News and Information Station - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://www.kuow.org/archives.asp

**KUOW 94.9** PUBLIC RADIO

ON-AIR SCHEDULE LOCAL INFORMATION KUOW NEWS TRAFFIC WEATHER

LISTEN LIVE NOW: Weekday PLEDGE NOW

SEATTLE'S NPR NEWS & INFORMATION STATION PROGRAMMING Select a Program

June 12, 2002

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**Program Archives** [Download RealPlayer to listen to the archives.](#)

**KUOW Produced Talk Shows**

By clicking the links below, you can jump to the *program archive pages* or do an advanced search by date, host, category, or single keyword.

**Weekday Archives**  
Hosted by Steve Scher. Broadcasts Monday - Friday 9:00am - 11:00am. Listeners can speak directly with newsmakers and local leaders. Hear expert analysis and debate on issues shaping our community and nation, and participate in Steve Scher's interviews with nationally-noted authorities.  
Weekday Regulars: [Gardening](#), [Commentary](#), and [Weather](#).

**The Conversation Archives**  
Hosted by Ross Reynolds. Broadcasts Monday - Friday 1:00pm - 2:00pm. A news call-in program that digs into the key stories of the day to provide context, history and background. Expert guests help explain what is happening and why from a variety of angles. Listeners get their questions answered and add their perspectives.

**The Beat Archives**  
Hosted by Marcie Sillman & Dave Beck. Broadcasts Monday - Friday 2:00pm - 3:00pm. Seattle's rich and diverse arts community is spotlighted through hosts Marcie Sillman and Dave Beck, from live music performance to tours of visual arts exhibitions to in-depth conversations with leading authors and dramatists. Seattle's premier arts and culture show will continue KUOW's commitment to presenting

start [Taskbar icons] Archives and Stock F... 94.9 KUOW: Seattle's... Document1 - Microsof... EN 10:30 AM



# KUOW Search

94.9 KUOW: Seattle's NPR News and Information Station - Microsoft Internet Explorer

Address: [http://www.kuow.org/Talkshow\\_Search.asp?Search\\_Type=Topic&Search\\_Text=mt+rainier](http://www.kuow.org/Talkshow_Search.asp?Search_Type=Topic&Search_Text=mt+rainier)

94.9  
kuow.org  
LISTEN LIVE NOW: Science Friday  
PLEDGE NOW

SEATTLE'S NPR NEWS & INFORMATION STATION PROGRAMMING Select a Program

November 15, 2002

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**KUOW Talk Shows: Archive**

Host	subject	Topic	Listen	Date Aired
------	---------	-------	--------	------------

Sorry, no records were found for your request. You may want to browse a different archive feature, such as date or category.

**Order a Tape**

**KUOW TALK SHOWS**

Browse by Show  
Weekday

**Regulars:**  
[Books Commentary](#)  
[Gardening Weather](#)

**ADDITIONAL SEARCHES:**

by **Date Range**  
Jan 01 2002  
Jan 01 2002

by **Host**  
Steve Scher

by **Category**  
Arts/Culture

by **Keyword**  
mt rainier

start 2:02 PM Seattle 94.9 KU... 63 Internet 12:18 PM



# KUOW Search

94.9 KUOW: Seattle's NPR News and Information Station - Microsoft Internet Explorer

Address: http://www.kuow.org/Talkshow\_Search.asp?Search\_type=Topic&Search\_text=rainier&cx=128y=8

CELEBRATING 10 YEARS ON AIR SCHEDULE LOCAL INFORMATION KUOW NEWS TRAFFIC WEATHER

**KUOW 94.9** PUBLIC RADIO LISTEN LIVE NOW: Weekday PLEDGE NOW

SEATTLE'S NPR NEWS & INFORMATION STATION PROGRAMMING Select a Program

June 12, 2002

**KUOW Talk Shows: Archive**

Host	Subject	Summary	Listen	Date Aired
Ross Reynolds	Low income housing, development	<a href="#">Revamping Rainier Vista</a>		1/7/02
Marcie Sillman/Dave Beck	Rainier String Quartet, Borcher, CD reviews	<a href="#">James Turrell</a>		10/30/01
Steve Scher	Buzz Anderson, Rainier Valley Historical Society	<a href="#">The History of the Rainier Valley</a>		1/16/01
Steve Scher	A Changing Neighborhood	<a href="#">The Changing Face of Rainier Valley</a>		6/2/00
Steve Scher	Climbing Mt. Rainier - Guest: M. Gauthier	<a href="#">A Guide To Climbing Mt. Rainier</a>		5/11/00

Back More Stories

**Order a Tape**

**KUOW TALK SHOWS**

Browse by **Show**

**Regulars:**  
[Books](#) [Commentary](#)  
[Gardening](#) [Weather](#)

**ADDITIONAL SEARCHES:**

by **Date Range**

by **Host**

by **Category**

by **Keyword**

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## Challenges to Accessing KCTS & KUOW Broadcasts

- Provide effective subject representation
  - For broadcasters
  - Teachers & students
  - General public
- Provide effective search mechanisms
- Utilize CPB Metadata Element Set (under development) and controlled vocabularies (to be developed).
- Integrate KCTS & KUOW search systems with local public libraries catalogs
- The ultimate goal is to produce a model that CPB (PBS & NPR) affiliates can replicate around country.<sup>13</sup>



# MARS Phase I: Goals & Objectives

- to understand current information practices within KCTS and KUOW
- to determine how MARS would improve the management and sharing of broadcasts
- Needs assessment
  - KCTS & KUOW
  - Public broadcasters
  - Teachers
  - General public

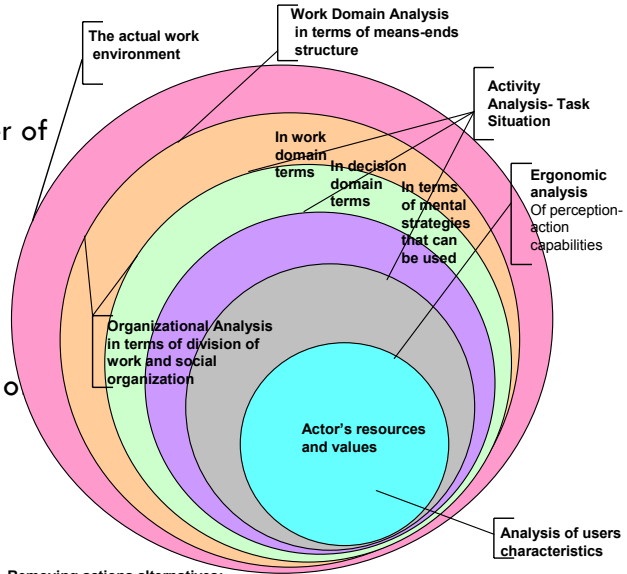


# Methodology

- Cognitive Work Analysis (CWA)
- Survey

# Cognitive Work Analysis (CWA) Framework

- Work centered analysis approaches information interactions by a number of dimensions.
- This analysis addresses dimensions such as:
  - the actual work environment
  - the work domain
  - task situation in terms of
    - (a) work domain
    - (b) decision making
    - (c) mental strategies



Removing actions alternatives:  
Defining behavior shaping constraints  
at progressively narrow envelopes



# Cognitive Work Analysis (CWA) Framework

- **Perspectives (or Dimensions) of Means-Ends of Work**
  1. work domain/organization
  2. task domain
  3. collaboration about tasks
  4. decision task
  5. collaboration in decision tasks
  6. strategies (information searching)
  7. collaboration in strategies
  8. allocation of roles
  9. management
- **Means-Ends Abstraction Levels**
  1. goals/constraints
  2. priorities
  3. functions
  4. work processes
  5. physical objects










# Data Collection

Parameters	Descriptions
Actors	<ul style="list-style-type: none"> <li>•Users: staff of public broadcast stations, school district teachers,</li> <li>•Experts: Information system analysts, designers, classification analysts, research analysts</li> </ul>
Events	<ul style="list-style-type: none"> <li>•Focus group meetings</li> <li>•Individual interviews</li> <li>•Walkthroughs</li> <li>•Web-based questionnaires</li> </ul>
Methods	<ul style="list-style-type: none"> <li>•Interviews</li> <li>•Questionnaires</li> <li>•Discussions</li> <li>•Observations</li> </ul>

# Data Analysis: The abstraction hierarchy @ KCTS

Level of abstraction	Means-ends relations	Examples (from KCTS)
Goals and constraints	Why	Inform, involve and inspire the public through delivery of representative, educational content
Priorities	Why 	Fundraising, increased Internet presence, new facilities design
Tasks	Why 	In-house production, web development, content creation
Work processes		Production meetings, video logging, airing programs
Physical objects	How	Programs, Internet, raw footage tapes, databases, computers





# Data Analysis: uncovering common ground

Domain	Tape Librarian	Producers	Interactive Group
<b>Level</b>			
<b>Goals and constraints</b>	Organize Tape Library	Produce programs	Produce companion web pages for programs
<b>Priority measures</b>	Identify contents of tapes	Produce programs on time and on budget	Support needs of production projects
<b>Tasks</b>	Finding footage	Finding raw footage to re-use for new programs	Build websites, create streaming video, log raw footage
<b>Work processes</b>	Information seeking for producers	Searching for footage, working with librarian	Searching for footage, working with librarian
<b>Physical objects</b>	Tapes, databases, computer	Tapes, edit switches, AVID Unity server	Tapes, logging machines, computers, <sup>20</sup> databases



## Needs arisen from the CWA at KCTS

### Some examples:

- Tapes need to be identified, labeled, cataloged, and organized
- Metadata about tape contents should be created and made accessible through a central online database
- Search strategies should be accommodated that allow users to search using a variety of metadata attributes
- Subject description should be provided at shot or sequence level



# Deliverables of Phase I

- Needs assessment
  - CWA of KCTS
  - CWA of KUOW
  - CWA of teachers
- Survey of public broadcasters' use of metadata
- Market research survey
  - General public
  - Teachers



## Future Work: Phase II

- KCTS and KUOW will complete and refine existing hardware, software and workflow systems for asset input, storage and retrieval.
- Utilize the CPB Metadata Schema.
- Create or customize controlled vocabularies for subject access.
- Develop distributed search capability between the partner sites.

Development of controlled vocabularies for radio, television, and related subject matter

- Linking of media assets to curriculum and lesson plan standards as identified by teacher focus groups



**Thank You!**  
**Questions at the end please.**

