Information Architecture & Usability Engineering

HFWeb 2000 Tutorial
by Keith Instone
http://argus-inc.com/conferences/hfweb2000/

Introductions

Keith Instone

- Usability Specialist, Argus Associates
- Fortune 500 consulting experience
- CHI-WEB moderator
- usableweb.com curator
- Computer Science/HCI background
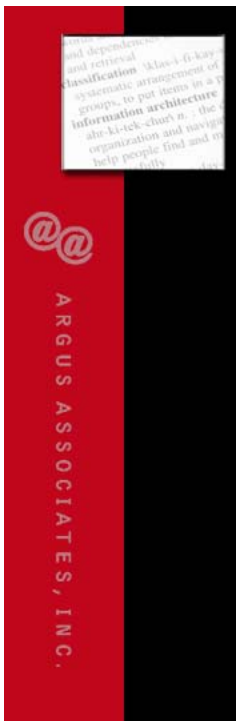- "Texas resident for the month"

Session Overview

Goals

- Define information architecture, usability engineering
- IA components, examples
- IA & UE Methodology

Approach

- Share experiences, opinions.
- Show examples, tell stories.
- Facilitate discussions, hands-on exercises.

Definitions

Information Architecture

> The art and science of structuring and organizing information environments to help people achieve their goals

Usability

> The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.

Common Goals

User experience
- Users are in control

Access to information
- Hypertext: content = user interface = structure

Managing information
- If you cannot manage it, users cannot find it

Enabling business
- Bottom line

Why are they Important?

Costs
- Cost of finding information
- Cost of *not* finding information
- Cost of development and maintenance

How do we measure the costs?

Studies

- Jakob Nielsen

  A poor navigation system in a large corporate intranet can cost the company millions in lost employee productivity

- Creative Good

  39% of shopping attempts failed due to poor site navigation; estimated $6 billion loss during 1999 holiday season
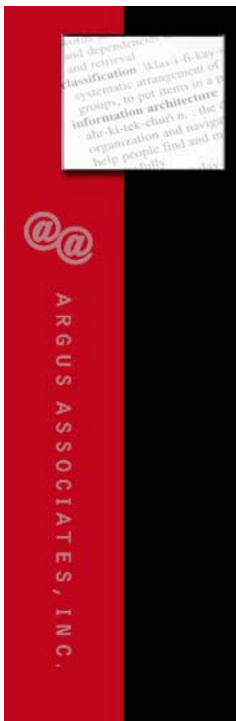
Why is it Difficult?

Unrealistic Expectations

- Diverse goals, users, content, authors
- One size does not fit all (*relevance is subjective*)

Ambiguity of Language & Organization

- Synonyms
- Homonyms
- Categories
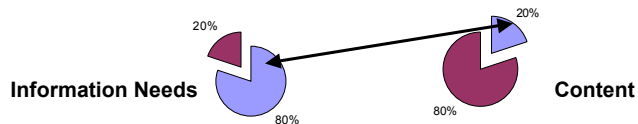
Any Easy Solutions?

Simplify the Problem

- Address the major needs of the major audiences
- Remove the ROT
- Enable precision

Design for the 80/20 Rule

20%

20%

Information Needs   80%   80%   **Content**

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Information Ecologies

Context

Content   **Users**
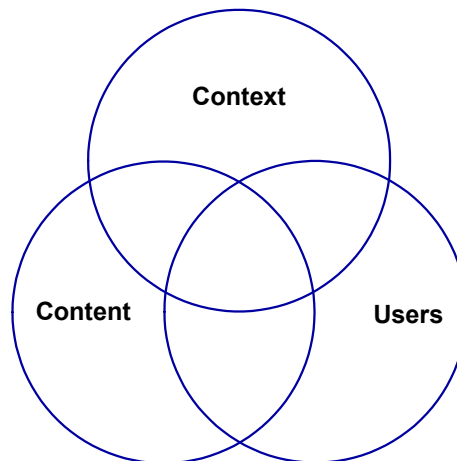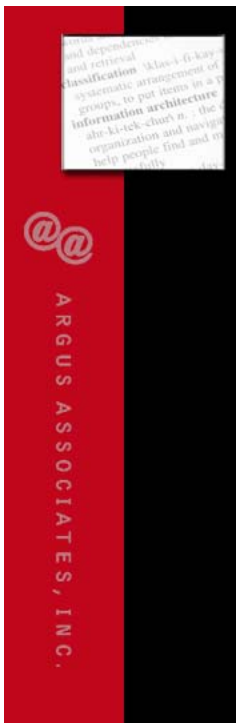
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Questions so far?

Ending theoretical, starting more practical topics…

IA & Usability Components

Organization	**Easy to learn**
Labeling	**Efficient to use**
Searching	**Easy to remember**
Navigation	**Few errors**
Indexing	**Satisfying**

Organization Structures

Hierarchy: top levels, mental model
Database: structured content, relationships
Hypertext: cross-references, contextual

hierarchy

hypertext

database
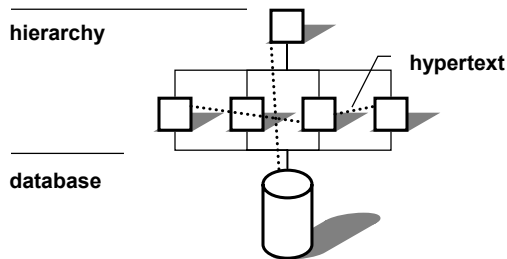
FAQ: Depth vs. Breadth

Research
- Miller's "magic number" of 7+/-2
- Larson and Czerwinski (1998)
  - 512 nodes (1. 16x32   2. 32x16   3. 8x8x8)
  - Supports need for balance and structure
  http://www.research.microsoft.com/users/marycz/chi981.htm

But this discussion is incomplete...
- It Depends!!!
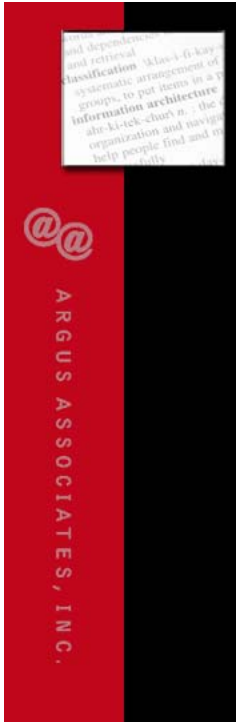
Organization Schemes

Exact Schemes
- Everything has a place (one right answer)
- Easy to create and maintain
- Great for known-item searches

Ambiguous Schemes
- Messy and full of overlap
- Hard to create and maintain
- Great for subject searches and associative learning
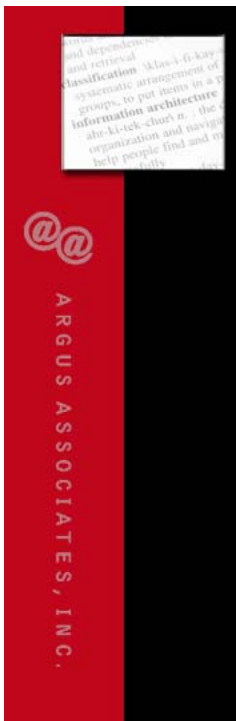
Labeling Systems

Labels Are a Form of Representation
- Predictability
- Power to Influence

Label Laws
- Strive for Consistency, Clarity, Cohesiveness
- Address Label Length Explicitly
- Proceed Cautiously with Icons
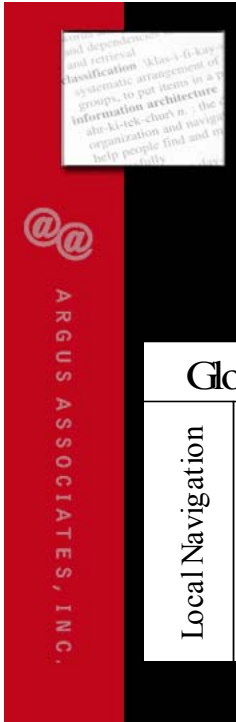
Navigation Systems *(Integrated)*

Goals

- Provide context and flexibility.
- Avoid drowning content.

Global navigation	
Local Navigation	Content is here, with <u>contextual navigation</u> embedded or separate.

Where am I?	
What's nearby?	What is here? What's <u>related </u>to what's here?

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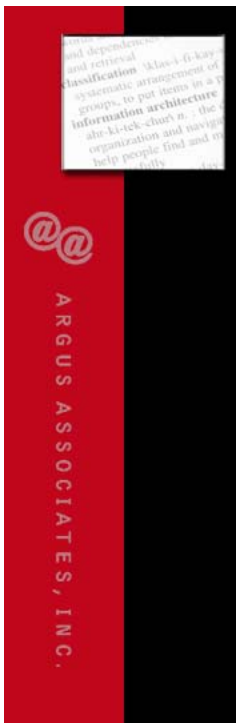
Navigation Systems *(Supplemental)*


```
Table of Contents ─┐
                   │
Site Map ──────────┤───── Content
                   │
Indexes ───────────┘
                   
Search
```
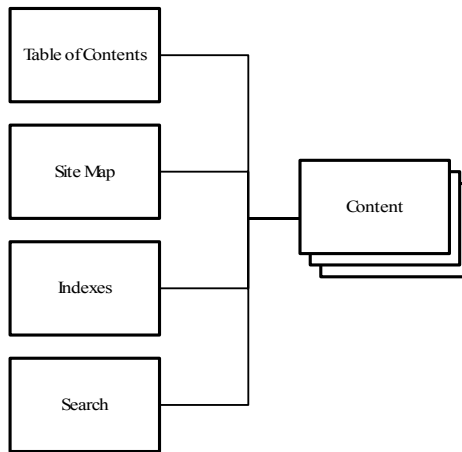
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From Top to Bottom

Top-Down	**Bottom-Up**
umbrella	sub-site
strategy	content
hierarchy	database
primary path	multiple paths

"umbrella" site
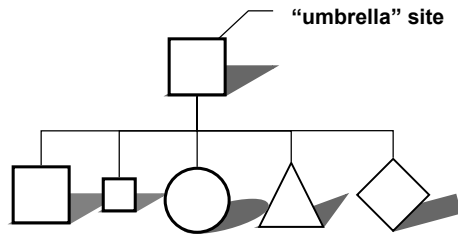
local subsites
(human resources, corporate communications, R&D…)
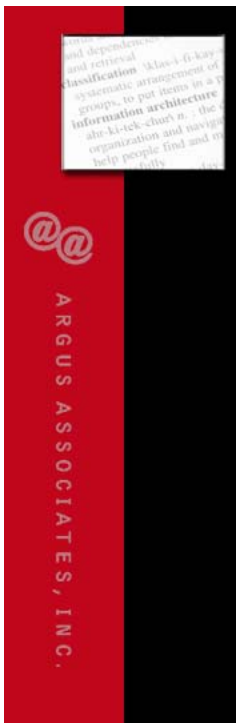
Questions so far?

Ending components, starting methodology…
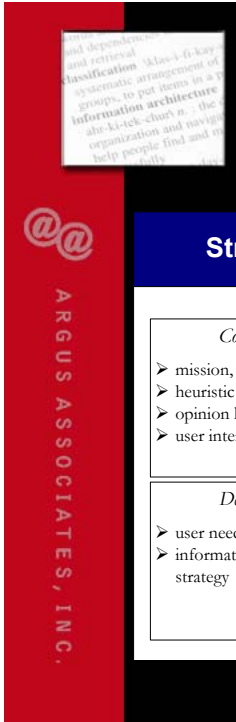
Structured IA Methodology
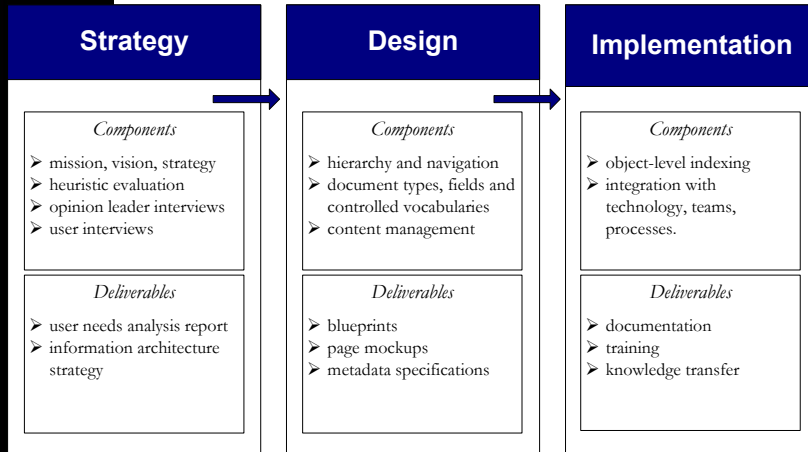
Strategy	Design	Implementation
Components	*Components*	*Components*
➢ mission, vision, strategy ➢ heuristic evaluation ➢ opinion leader interviews ➢ user interviews	➢ hierarchy and navigation ➢ document types, fields and controlled vocabularies ➢ content management	➢ object-level indexing ➢ integration with technology, teams, processes.
Deliverables	*Deliverables*	*Deliverables*
➢ user needs analysis report ➢ information architecture strategy	➢ blueprints ➢ page mockups ➢ metadata specifications	➢ documentation ➢ training ➢ knowledge transfer

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Usability Engineering Lifecycle

Know the user
Competitive analysis
Usability goals
Parallel design
Participatory design
Coordinate the total interface
Guidelines and heuristics
Prototyping
Empirical testing
Iterative design
Field use, feedback

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Applying the Methodology

Strategy	Design	Implementation
Components	*Components*	*Components*
➢ mission, vision, strategy	➢ hierarchy, navigation	➢ object-level indexing
➢ heuristic evaluation	➢ document types, fields and controlled vocabularies	➢ integration with technology, teams, processes.
➢ opinion leader interviews	➢ content management	
➢ user interviews		
Deliverables	*Deliverables*	*Deliverables*
➢ user needs analysis report	➢ blueprints	➢ documentation
➢ information architecture strategy	➢ page mockups	training
	➢ metadata specs	knowledge transfer

Know the user
Heuristics
Field use
Competitive analysis
Participatory design
Empirical testing

Business Context

Background Research	Presentations
(mission, vision, culture, history, resources, audiences, content)	*(education, awareness, political support)*
Research Meetings	Opinion Leader Interviews
(strategy, technology, content management, authoring, design)	*(stakeholders, ideas, resources, support)*

Existing IA

Site Mapping
(capture existing structure, manual, automated)

Heuristic Evaluation
(formal or informal expert critiques)

Benchmarking
(quantitative, qualitative, self, competitor, best of)

Content

Content Inventory
(volume, scope)

Content Review
(representative sample, structure, access)

Users

Site Usage Evaluation *(search logs, clickstream data, customer support)*	**Surveys** *(broad and shallow, email, web, print)*
Observation *(contextual inquiry, highly variable application)*	**Interviews** *(Q&A, card sorting, affinity modeling, task analysis)*

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Card Sorting (Exercise)

Exploratory

Fixed Collection

Bucket Evaluation

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Current prices of inflorescent vegetables

Company holiday schedule

Last month's banana sales figures for Arkansas

What are the European export regulations for nuts?

401(k) change form

Phone directory

Kroger's: how it lays out its produce section

Track a FedEx package sent to your office

List of tuber vegetable growers in the Midwest

What are my sales expectations for this quarter?

Ranking of tomato processing plants, by volume

Seminar for sales employees: how to market stalk vegetables

Apricots

Herb department: org chart

Phone numbers of top contacts at each grocery chain

Case study: marketing turnips to potato chip manufacturers

What is our current strategy for tarragon?

Weather forecast

Dealing with Mexican import authorities

List of employees: Berry department

Evaluating the mesocarp and pericarp qualities in oranges

Who do I contact with questions about distributors in New Jersey?

Map of cubicle assignments

Stalk Vegetables

Online application: register a new client

Form to order corn from our Ohio producer

Consumer Reports ranking of major canned vegetable brands

How to run a virus scanning program on your computer

Len Tilly's weekly report on the legume market

What is the primary goal of your department for this year?

Exploratory Card Sort Activity

Scenario: Produce Distributing, Inc., Intranet

Hi, I am an information architect in our ITS department here at PDI. We are working on a whole new way to organize our intranet, Fruity Net. We know that people are having a hard time finding what they are looking for, so we are trying to get a better sense of how you would like things organized on Fruity Net.

So we are asking for your help. Here are some cards that represent information related to our company. We want you to group these cards in any way that makes sense for you. There are no right or wrong answers. If you have any questions or comments about any of the cards, please let us know. Some of the cards may not be clear to you, or might even be incorrect. We have some sticky notes here and we can modify any of the cards in order to clarify them.

Please talk aloud as you are doing this, if you can. We may interrupt you if we have a question about what you are doing After you have your initial set of groups, we will ask you to explain what you have so far. You will be allowed to make changes after that, of course. Once you are satisfied with your piles, we will give you a set of these colored cards and ask you to label your groups.

Explanation for this exercise: Exploratory card sorting (for intranets)

Goals of exploratory card sorting:
- Be an instrument for talking with users (not as boring as just interviews)
- Get some feedback on high-level IA (major categories)
- Raise specific issues (that we suspect will be troublesome)
- Explore specific dimensions to the content (newsiness, audience, owner, doc type)

Key characteristics
- Heterogeneous, different levels of granularity, apples and oranges, just like an intranet. For example, a document vs. piece of data from a document vs. a list of documents vs. a database vs. an abstract concept
- Raise specific issues, like: are department boundaries (who owns it) stronger than audience (who uses it), insert "wish list" content
- Give users something to talk about
- Different phrasing: statements, questions, colons,

How to do it
- Identify major dimensions that you *guess* users may sort by
- Identify specific issues on your agenda
- Create card labels that match above
  - Vary in terms of granularity, phrasing, etc. (to match the diversity of an intranet)
  - Choose cards that cover *multiple* dimensions and may create conflicts when sorting
- Create the cards
- Have users sort (a subset?), discuss, label the groups
- Record groupings and take notes
- Do top-down and bottom-up analyses

Possible Dimensions
- Internal business vs. external products: HR, sales, etc vs. something we sell
- Type of produce: herbs, fruits, vegetables, citrus fruits, nuts, stalk vegetables, pome fruits, apple varieties
- Timeliness of information: news, quick access/often, research, application to do it
- Source of information: HQ, a department, an individual, from outside the company
- Where we sell to (our customers): grocery store, end consumers, processing plants, overseas, governments
- Where it comes from: individual farmer, coop, overseas, other distributors, governments
- Document type: memos, presentations, reports, web sites, org charts, forms, …
- Audience: marketing, field, sales, technical, management, …

Notes about specific cards
- *Form to order corn from our Ohio producer*: doc type = form, geography = Ohio, customer = producer, product = corn
- *What are the European import regulations for nuts?:* market = Europe, product = nuts, topic = regulation
- *Current prices of inflorescent vegetables*: timeliness = current, product = group of them
- *Last month's banana sales figures for Arkansas*: timeliness = last month, product = banana, geography = Arkansas
- *Weather forecast for this week*: Generic intranet card but may take on different meanings here: is this for personal or business needs?

Fixed Collection Card Sorting

Fixed Collection Card Sorting is a *design* activity to help you figure out specific ways to group homogenous content or collections of content. This is a common way to get user feedback on internet and intranet content.

The key characteristics here:
- Fairly homogenous, focused topics on the cards (vs. intentionally heterogeneous cards in exploratory card sorting)
- Often have details (sub-contents) to clarify and possibly mimic user interface (ala Yahoo)
- Cards usually pre-determined and straight forward to generate: just look at what you have (or will have)
- Can do "eyeball" analysis, but also might be worthwhile to use cluster analysis software: http://www.sandia.gov/itg/newsletter/dec99/cluster_analysis.html

Scenario: Product information for Florida Leisure Activities (FLA)

Sewing: sewing machines, pins and needles, scissors, fasteners, bobbins, pin cushions, thimbles, tracing wheels	**Fishing**: rods, reels, flies, hooks, nets, waders, tackle, fishing garments, tackle boxes
Darts: sets, dartboards, replacement points and flights, scoreboards, uncommon boards, lawn darts	**Billiards**: tables, cues, balls, chalk, racks, bridges
Archery: arrows, bows, targets, quivers	**Relief Printing**: knives, gouges, mallets, chisels, dabbers, brayers, inks
Knitting: needles, crochet hooks, knitting measures, yarn	**Mountaineering**: axes, helmets, carabiners, pitons, chocks, clothing
Embroidery: frames, fabric, webbing, hoops, needles	**Lithography**: litho pencils and crayons, pumice correcting pencils, levigators, calipers
Weaving: low warp looms, high warp looms, heedless, shuttles, reed hooks, bobbin winders, combs	**Camping**: tents, mattresses, sleeping bags, cooking sets, lanterns, stoves, canteens, coolers, knives, hatchets, shovels, rope
Bowling: balls, shoes, clothing, wrist protection, lawn bowling	**Golf**: clubs, balls, tees, apparel, bags, carts, indoor practice equipment
Fine Bookbinding: paper, boards, board cutters, tenon saws, sewing frames, backing hammers, leather	**Playing Cards**: decks, shufflers, rules, tables, custom backs, marked decks
Pottery: clay, ribs, cutting wire, banding wheels, wooden modeling tools, fettling knives	**Intaglio Printing**: brushes, roulettes, burnishers, varnish rollers, barens
Wood Carving: rasps, gouges, knives, chisels, blades	**Chess**: sets, boards, pieces, custom-made sets
Backgammon: sets, boards, dice, dice cups, custom-made boards	**Skating**: ice skates, roller blades, protective gear, clothing
Painting and Drawing: paints, inks, pens, pencils, brushes, supports, easels, palettes, utility liquids	**Pyrotechnics**: personal fireworks, shells, show equipment, safety devices, lasers, lights, music

Top-down Analysis: Group Labels and their Corresponding Topical & Priority Categories

Topical Categories	Group Labels
activities	family/activities feature interesting articles sites of the day outdoor activities & health outdoor studies personal interest verticals
advisories	alert area breaking weather news weather advisories (regional)
current conditions	conditions (summer) data points (dynamic) further info (how hot or cold) health warnings local current & forecast weather conditions (sub features) weather variables
forecasts	current forecasts daypart future forecast regional forecasts time factors weather products
geography	area location(s) geographical search national interest national weather area regional forecasts regional weather search weather map weather products
history	climatology (indices) historical
reference	dictionary reference data
science	environmental research & science science of weather weather science
severe weather	bad weather current storm centers hot/cold stuff inclement weather severe products weather conditions (major)

Priority Categories	Group Labels
top priority	current conditions daily check-ups forecast local weather weather advisories (regional) weather now!
secondary priority	local, national radar explained things that pique my interest conditions (winter) secondary

Bottom-up Analysis: Compare pairs of cards, draw strongest relationships
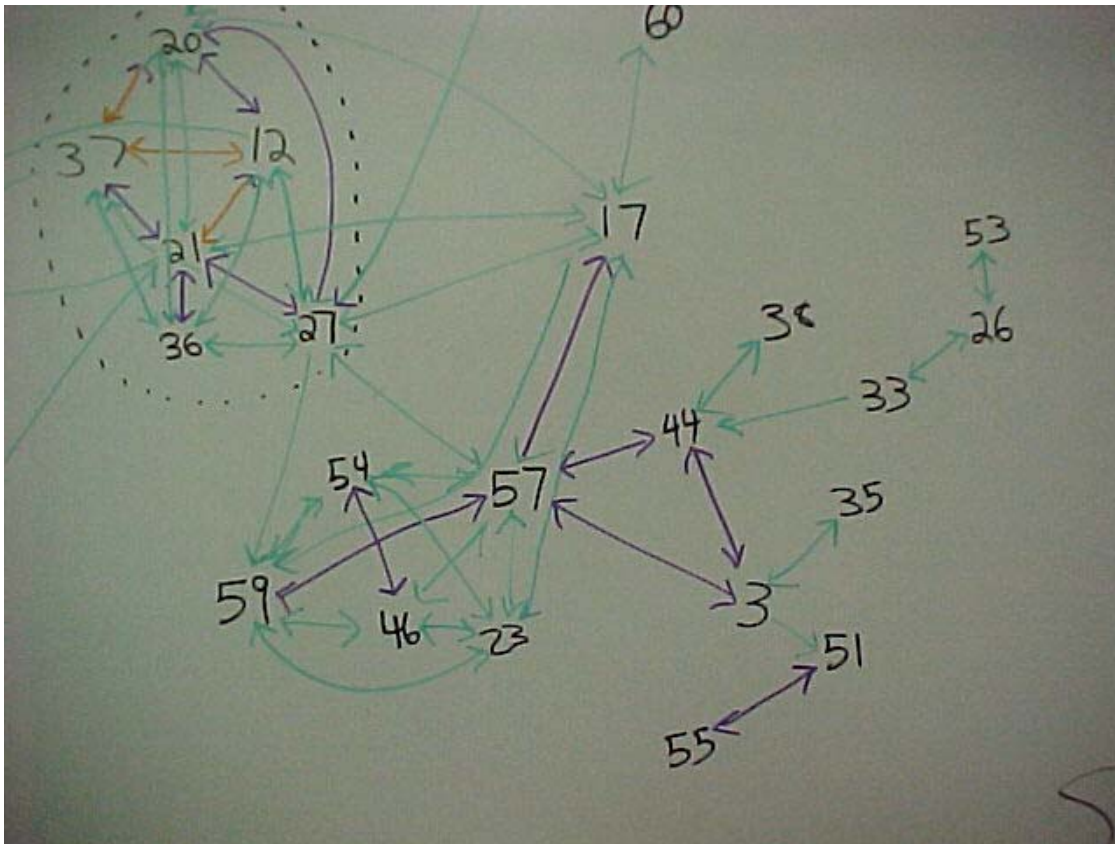
IA Strategies

User, content, business research
- Qualitative & quantitative

Formal report
- Blueprints, mockups, concepts, issues, recommendations

Define direction
- Buy-in before design
- Feedback into other corporate strategies

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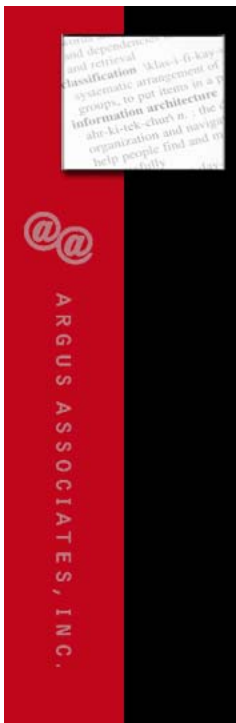
Horizontal, vertical and diagonal

		Product Areas			
		Baby Care	Beauty Care	Health Care	Food & Bev
	Core Competencies				
	Human Safety Testing	Ⓧ	X	X	X
	Consumer Understanding	X	X	X	X
	Communities of Practice				
	Packaging	X	Ⓧ	X	X
	Perfume	X	X		

Resources

Audience Guide: e.g. Marketing

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Geographic Homes/Zooming

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                    ┌─────────────────┐
                    │  Conditions &   │
                    │   Forecasts     │
                    └─────────────────┘

                    ┌─────────────────┐
                    │      Maps       │
                    └─────────────────┘

  ┌───────────┐     ┌─────────────────┐          ╭──────────────╮
  │ Main Page │─────│  Weather in the │──────────│  Geographic  │
  └───────────┘     │      News       │          │   Hub Page   │
                    └─────────────────┘          ╰──────────────╯

                    ┌─────────────────┐
                    │ How Will Weather│
                    │  Affect Your...?│
                    └─────────────────┘

                    ┌─────────────────┐          ╭──────────────────────────────────────────╮
                    │ Learn About the │          │           Geographic  Access             │
                    │     Weather     │          │ · World e.g., all continents             │
                    └─────────────────┘          │ · World Regional e.g., eastern half of Australia │
                                                 │ · National e.g., Canada                  │
                                                 │ · Local Regional e.g., Eastern United States │
                                                 │ · Local State e.g., Wisconsin            │
                                                 │ · Local City e.g, Madison, WI            │
                                                 ╰──────────────────────────────────────────╯
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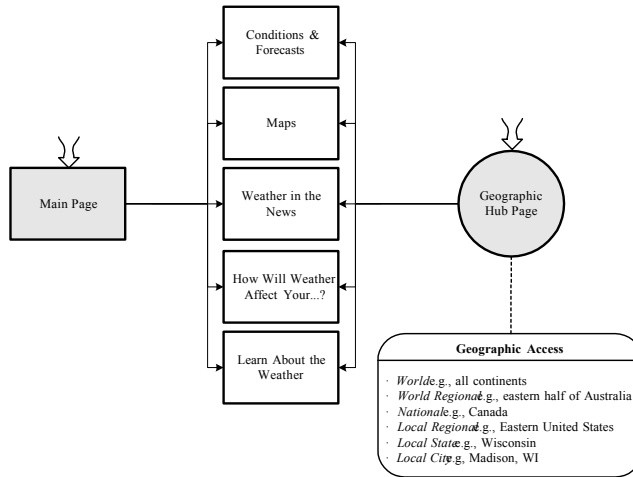
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Global Content Repository

```
                              ┌──────────┐
                              │   Main   │
                              │ Gateway  │
                              └──────────┘
        ┌──────────┬──────────────┬────────────┬───────────┬──────────┐
   ┌─────────┐          ┌─────────┐       ┌─────────┐  ┌─────────┐ ┌─────────┐
   │ Select  │          │ Primary │       │ Media   │  │ Career  │ │ About Us│
   │  Firm   │          │ Access  │       │ Center  │  │ Center  │ └─────────┘
   └─────────┘          └─────────┘       └─────────┘  └─────────┘
   ┌─────────┐    ┌─────────┐┌─────────┐┌─────────┐
   │   By    │    │   By    ││   By    ││   By    │
   │ Country │    │ Service ││Industry ││  Topic  │
   └─────────┘    └─────────┘└─────────┘└─────────┘
   ┌─────────┐
   │   By    │
   │ Language│
   └─────────┘              ╭──────────────╮
   ┌─────────┐              │    Global    │
   │   By    │              │   Content    │
   │  Firm   │              │  Repository  │
   └─────────┘              ╰──────────────╯
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   │Firm Sites│
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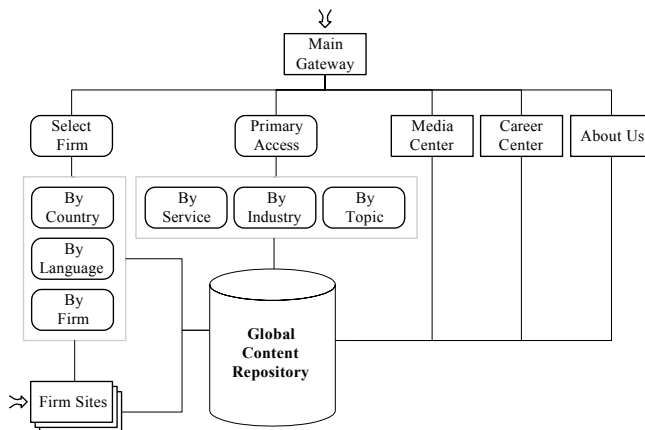
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Last Chance for Questions today…

Contact Me

Keith Instone (instone@argus-inc.com)

Argus Associates, Inc.
912 North Main Street (*starting August 1*)
Ann Arbor, Michigan 48104
Tel: 734.913.0010

http://argus-inc.com   Argus Associates

http://argus-acia.com   Argus Center for
                             Information Architecture