



Developing Taxonomies

Tools for Navigating the Uncharted Seas of Information

Kathryn Breininger, The Boeing Company
kathryn.r.breininger@boeing.com

and

Mary Whittaker, The Boeing Company
mary.s.whittaker@boeing.com

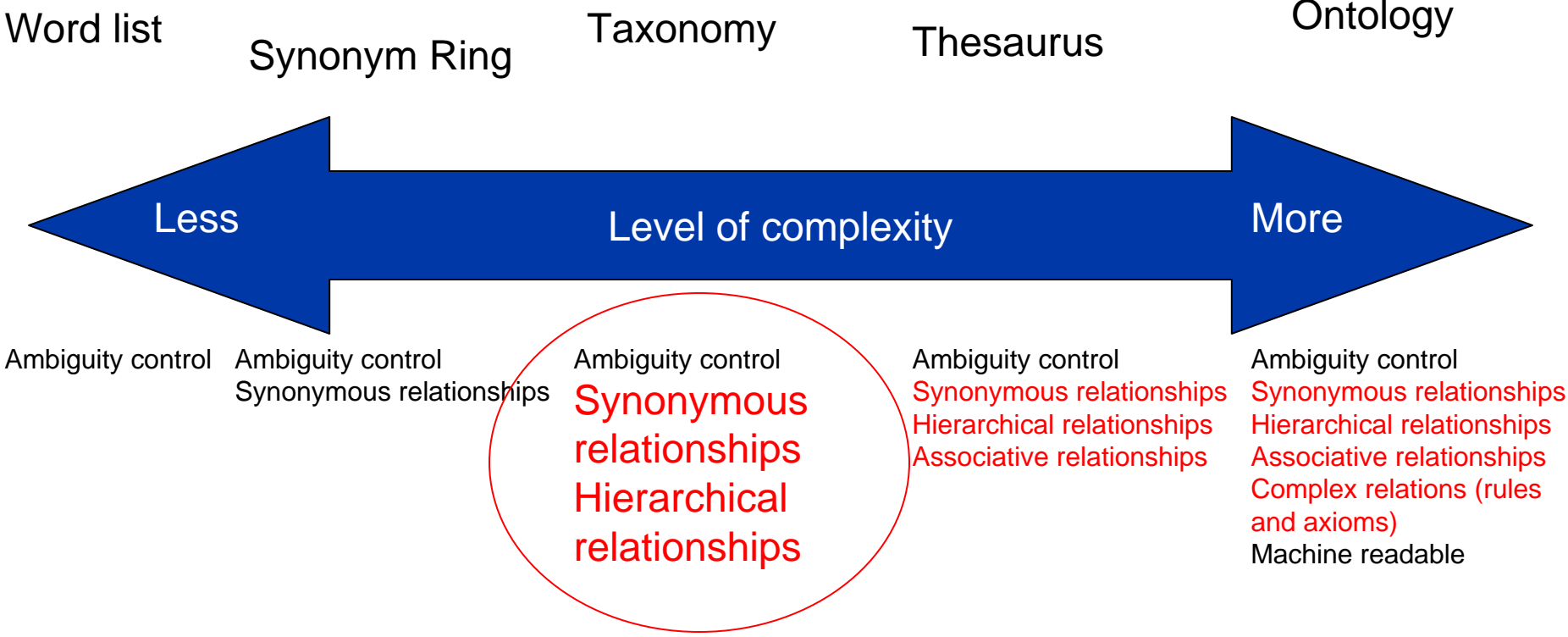
Setting the Stage

- Information overload
- Users don't know what terms to use for searching
- Individuals use multiple ways of organizing
- No control over terminology with full text searching

What is a Taxonomy?

- A controlled vocabulary
- Relationships are one step broader or narrower
 - Genus/Species
 - Instance
 - Whole/part
- Browsable hierarchical structure
- May include equivalent relationships
- Used to consistently categorize information
- Provides search terms for the user

The Controlled Vocabulary Spectrum

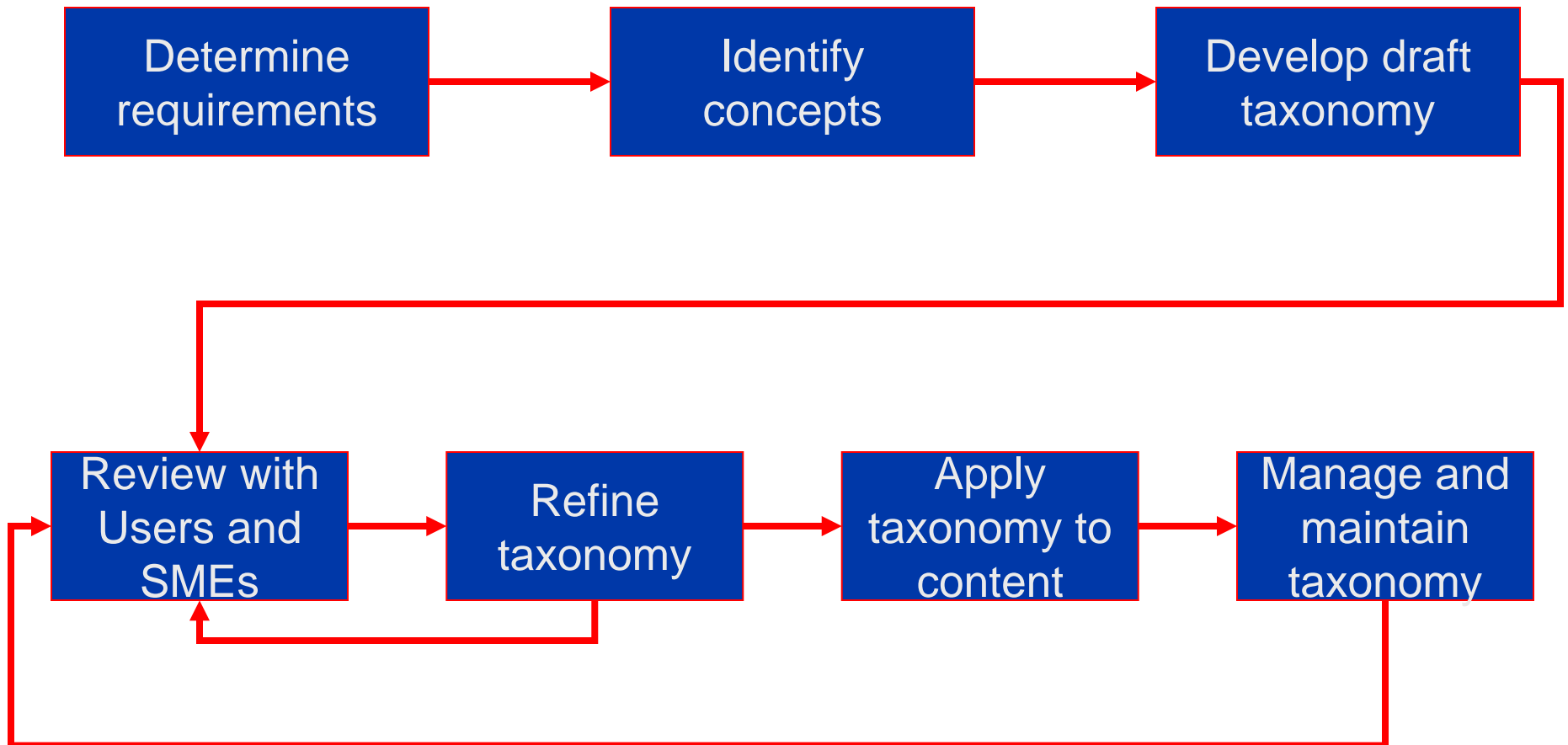


Based on ANSI
Z39.19-2005

Taxonomy Considerations

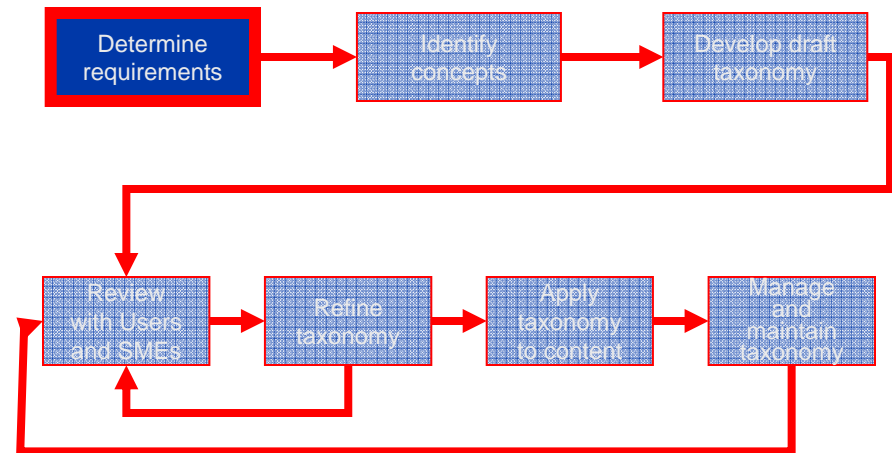
- Avoid duplicating a vocabulary that already exists
- Construction methods
- Dimensions of a taxonomy
- Size of taxonomy
- Facets
- Intended use of taxonomy

Developing a Taxonomy



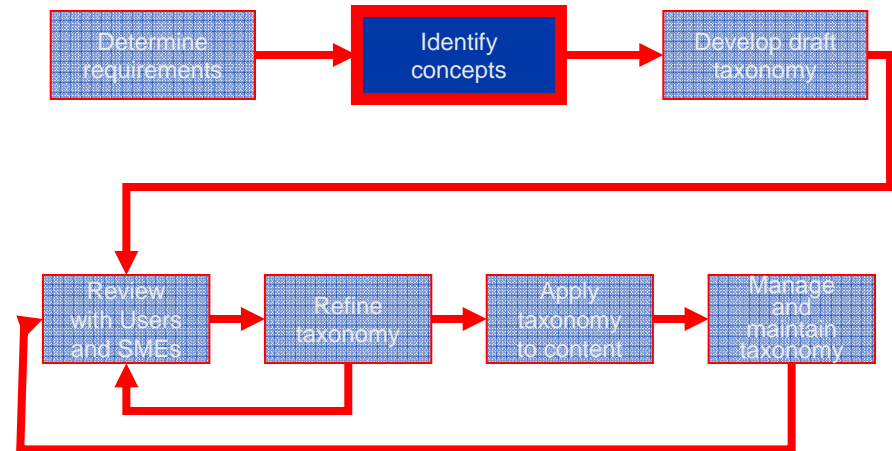
Determine Requirements

- Scope
- Purpose
- Format of content
- Subject or facet coverage
- Depth
- Type of content
- Volume of content
- Target audience
- User needs
- Any technology requirements



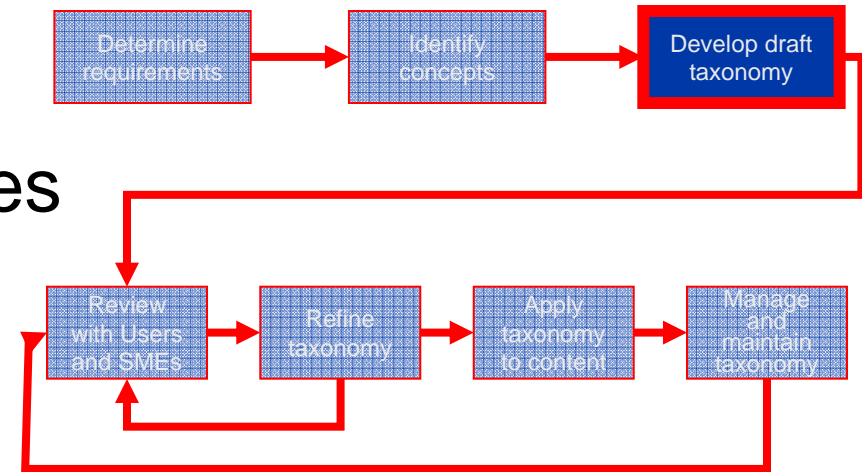
Identify Concepts

- Identify source materials
- Gather concepts
- Analyze search logs
- Inventory content
- Analyze content
- Determine content types
- Interview SMEs
- Identify existing taxonomies
- Extract candidate terms



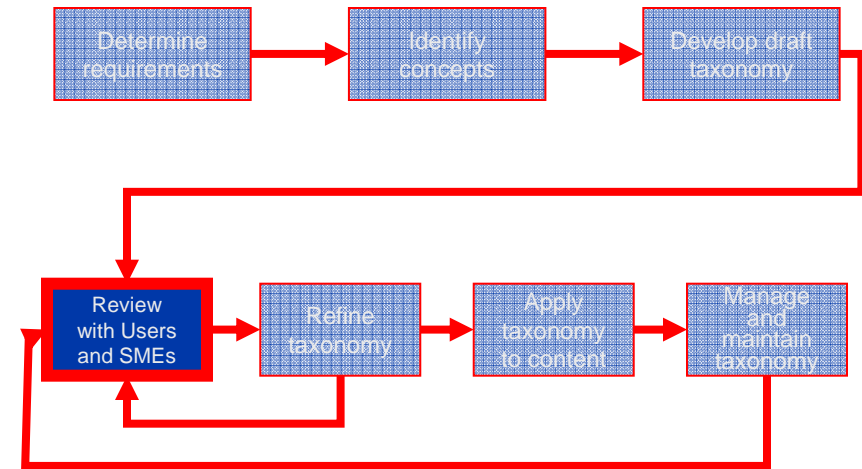
Develop Draft Taxonomy

- Establish common rules
- Reconcile terminology issues
- Use concepts universally
- Start broad, not deep
- Develop upper levels of structure
- Work from bottom up and top down



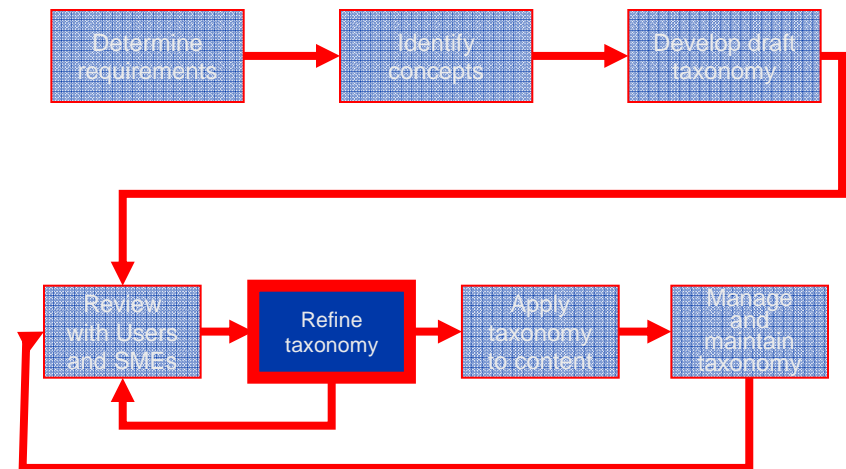
Review with Users and SMEs

- Provide draft for review
- Conduct usability studies
- Build consensus
- Keep a history of decisions
- Involve stakeholders, SMEs and users



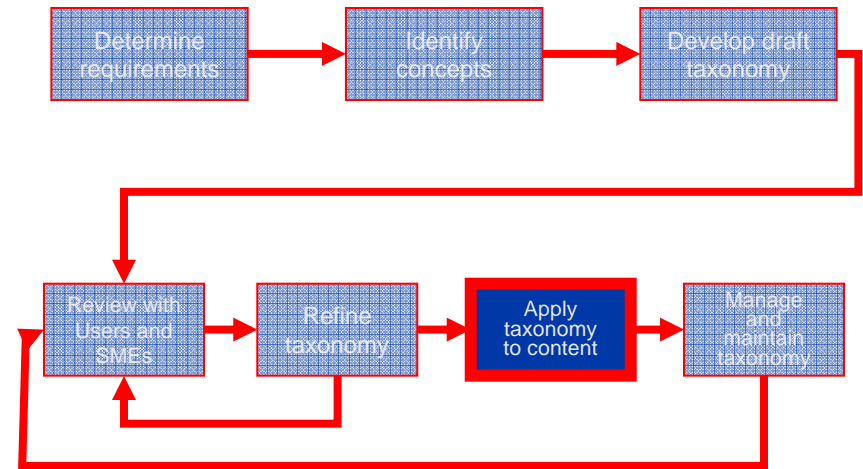
Refine Taxonomy

- Incorporate refinements
- Review and refine cycle
- Know when to quit
 - Don't overbuild
 - Low level of detail vs. value at the leaf node
- Establish test criteria



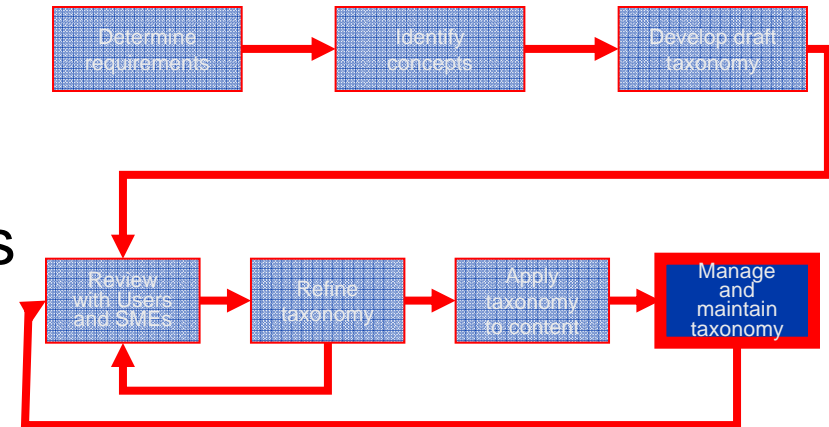
Apply Taxonomy to Content

- Provide guidelines for use
- Deploy
 - Navigate web sites
 - Tag content
 - Integrate with existing applications



Manage and Maintain Taxonomy

- Establish ownership
- Establish governance processes
- Create change control processes
- Develop maintenance plan
- Review content for new concepts
- Develop user feedback process for new concepts
- Maintain lifecycle (version control)
- Review success criteria
- Provide documentation



Keeping the Taxonomy Up-to-Date

- Review taxonomy periodically for currency
- Create a “candidate” list of terms for consideration
- Analyze items returned in error
- Sample newly added content
- Consider terms used excessively or infrequently

Testing the Taxonomy

- Does the taxonomy provide appropriate search results
- Does the taxonomy match user expectations
- Evaluation criteria
 - Should support Taxonomy purpose
- Testing methods
 - Heuristic evaluation (experts evaluate)
 - Affinity modeling (card sorting)
 - Usability testing (overall system)

Qualitative Methods for Testing

- Demonstrate to SMEs
- Conduct user satisfaction survey
- Perform usability studies
- Analyze items returned in error
- Tag sample content
- Test relevancy

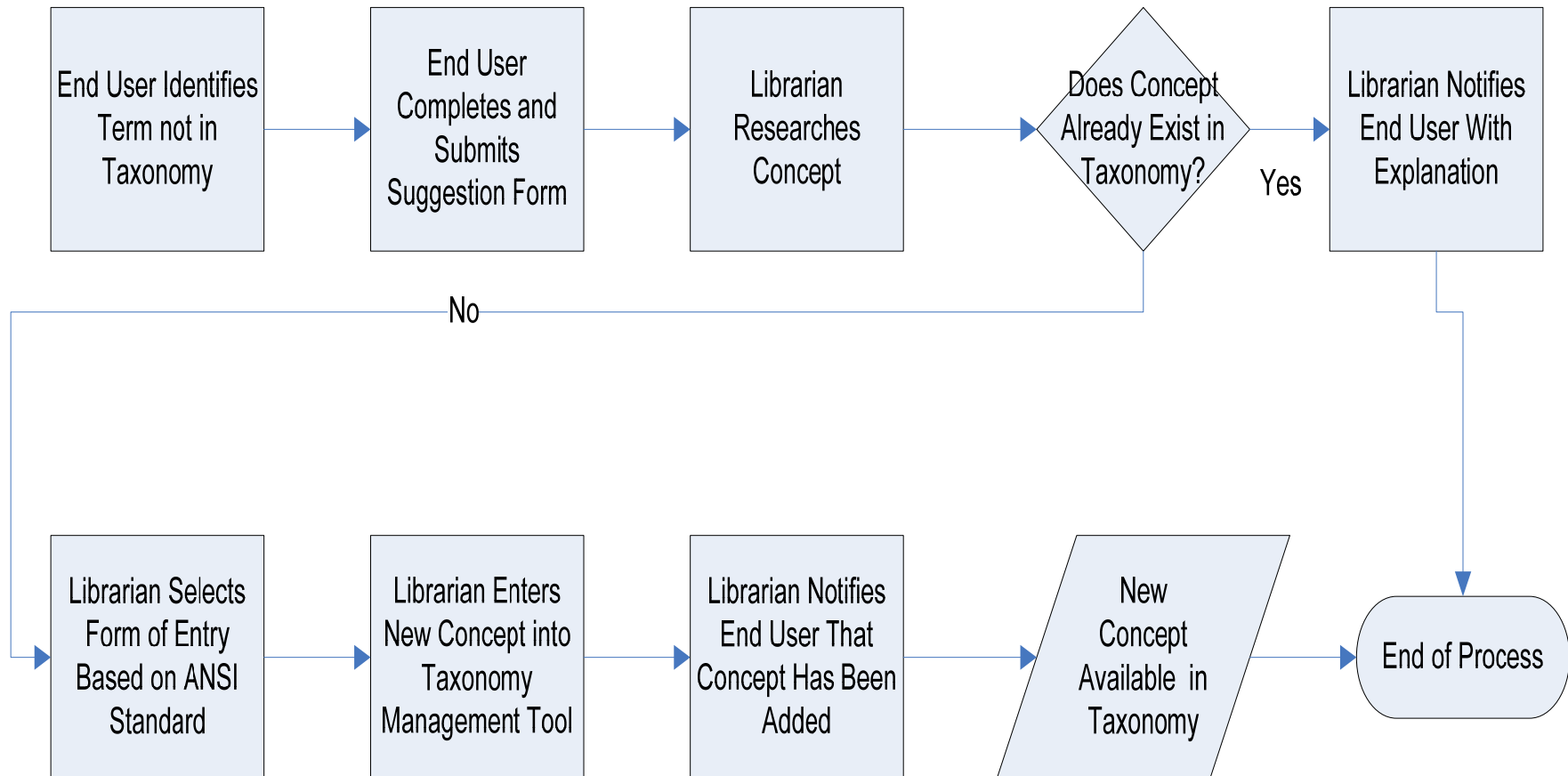
Quantitative Methods for Testing

- How evenly does the taxonomy divide the content?
- How well does the taxonomy match the content?
- How well does the taxonomy cover the field?
- Is the indexing repeatable?

Engaging People

- Find a strong sponsor and champion
- Build a multi-disciplinary team
 - Terminology decisions – Information professionals (librarians, archivists)
 - Technology decisions – IT
 - Subject matter experts from across the company
 - End users
- Task IT with maintenance of the software
- Give SMEs, content owners and librarians responsibility for taxonomy
- Obtain end user buy-in

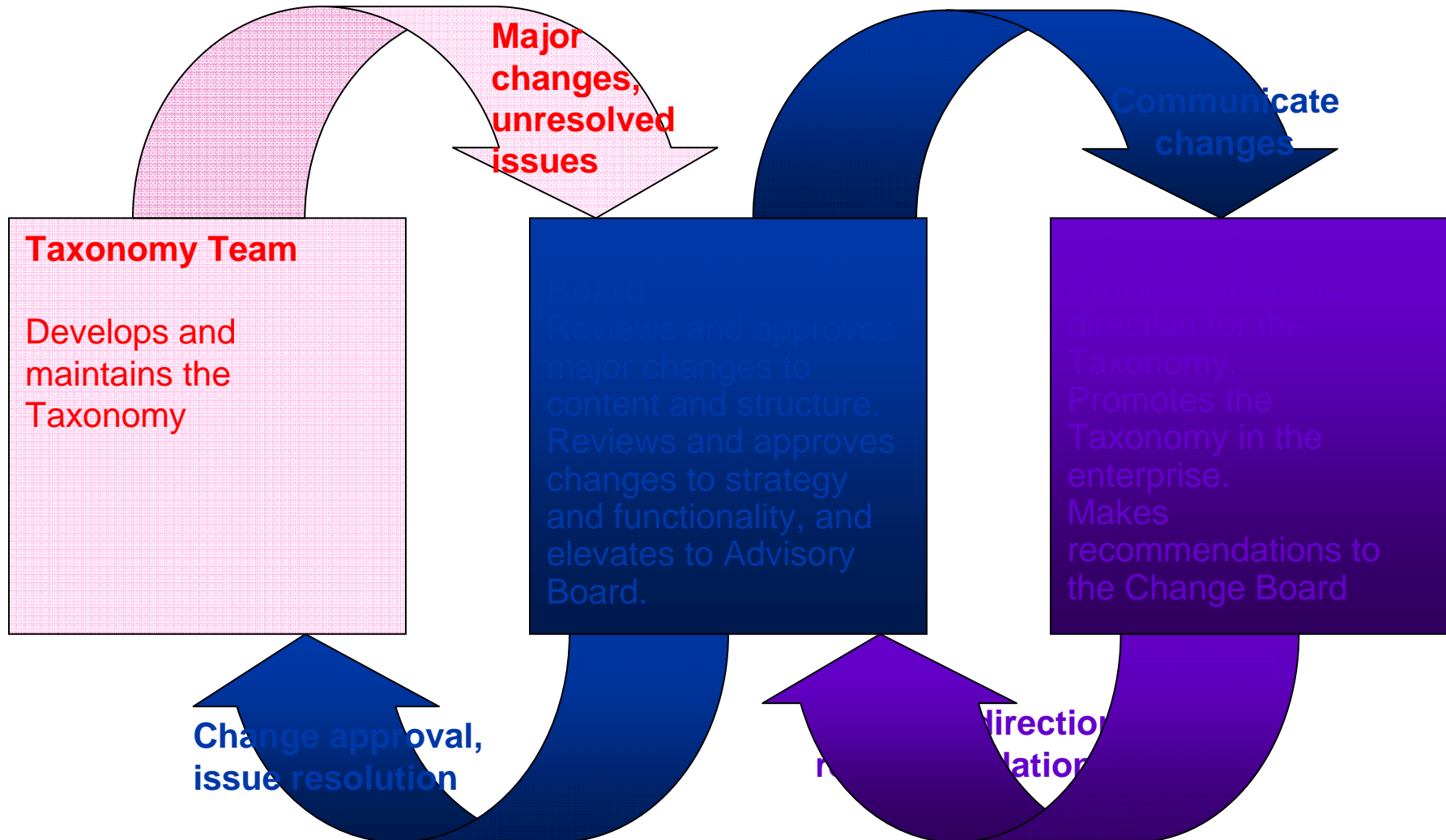
Process Flow for Term Suggestions



Taxonomy Governance Processes

- Taxonomy Team reports to a Change Board
- Implement a comment handling process
- Provide an appeals process
- Use issue logs
- Develop a communication plan
 - Announcements of enhancements, releases, Board activities, etc.
- Apply a release schedule
- Create governance documentation

Governance Flow



Taxonomy Documentation

- Editorial rules and guidelines
- Training materials
- Processes and workflows
- Marketing materials
- Presentation materials
- Conflict resolution process
- Taxonomy metrics
- ROI analysis

Taxonomy Implementation Drivers

- Search inefficiencies
- Bottom line impacted by inability to find information
- IT pressured to find solutions
- Content Management Systems
- Knowledge Management initiatives

Taxonomy Strategy

- Assimilate with business strategy
- Incorporate with search functions
- Leverage strategically into applications
- Integrate multiple corporate taxonomies
- Embed into the information life cycle
- Use to tag content at creation
- Plan for extensibility over time
- Owned by those who do classification

Value of Taxonomies

- Provides consistent terminology
- Improves search and discovery of relevant information
- Shows relationships among terms
- Organizes content on web sites, file shares, desktops
- Provides navigational structure for websites
- Leads users to most specific terms in a particular domain

Productivity Benefits

- More time for analysis
- Less duplication of effort
- Fewer poor decisions
- More focus on information as a strategic asset
- More internal knowledge sharing
- Better understanding of terminology

Searching Benefits

- Creates structure in unstructured content
- Facilitates navigation among terms
- Provides powerful browse capabilities
- Provides standardized access
- Organizes fragmented content

Business Benefits

- Reflects scope of your business
- Assists learning in the domain
- Supports business goals

Taxonomies and ROI Considerations

- Building and maintaining a taxonomy is a cost
- Tagged content must be available and used
- Technology costs are associated with building a taxonomy
- Taxonomies must integrate with applications for maximum return on investment

Taxonomy ROI Examples

- Increased sales through improved access to online product catalog
- Improved efficiencies in Help or Call Centers
- Knowledge worker productivity

Best Practices

- Find a strong sponsor and champion
- Establish a team to manage taxonomies
- Start with an overall framework
- Use automatic approaches to facilitate manual development – need human review
- Develop taxonomies for multiple facets
- Establish quality control measures and metrics
- Implement a phased rollout

Things to Avoid

- Do not use corporate lingo
- Do not use departmental names
- Do not use undefined acronyms
- Avoid over thinking
- Avoid over-engineering
- Avoid developing unneeded sections
- Avoid using a proprietary system for taxonomy management

Critical Success Factors (1)

- Understand target audience, requirements
- Develop strong stakeholder and user relationships
- Assign responsibility for ownership and maintenance
- Research lessons learned from other companies

Critical Success Factors (2)

- Understand how tools and technology play
- Build, buy and re-use
- Build in flexibility
- Differentiate between the taxonomy and the metadata scheme
- Develop metrics on value and relevance of the taxonomy
- Plan for long term – have a vision and strategy
- Plan for maintenance resources

Questions?

Kathryn Breininger

kathryn.r.breininger@boeing.com

Mary Whittaker

mary.s.whittaker@boeing.com



Back-up Slides

Sample Taxonomy Team Charter (1)

- Purpose
 - Develop and maintain taxonomies
- Scope
 - Review, approve, and implement changes
- Deliverables
 - Process documentation
 - Documentation of decisions and meeting minutes
 - Documentation regarding authoritative standards used, guidelines and best practices
 - User interface to the taxonomy
 - The taxonomy itself!!

Sample Taxonomy Team Charter (2)

■ Responsibilities

- Review and manage requests for changes to the Taxonomy
- Maintain a change log to track requests for changes
- Work with subject matter experts
- Communicate implemented changes
- Educate users and projects about the Taxonomy
- Develop and maintain the Taxonomy web site
- Evaluate and recommend back-end taxonomy management tools
- Attend meetings prepared to discuss items on the agenda
- Complete assigned responsibilities in a timely manner
- Promote Taxonomy activities in the enterprise

Sample Taxonomy Team Charter (3)

- **Membership**
 - Members must have expertise in vocabulary management
- **Authority**
 - Team receives its authority from Library Management
- **Accountability**
 - Team is accountable to Library Management and the Taxonomy Change Board
- **Voting**
 - Team strives for understanding, acceptance and support
 - Decisions reached by consensus whenever possible
 - When voting, each member has one vote and all will abide by the outcome. A quorum is required for voting.

Sample Change Board Charter (1)

- Purpose

- Reviews and resolves issues related to the Taxonomy that are not resolved at the Taxonomy Team level. Reviews and approves major changes to the Taxonomy

- Scope

- Reviews and approves major changes to content and structure of the Taxonomy. Reviews and approves changes to strategy and functionality. Elevates issues to Advisory Board for guidance.

- Deliverables

- Process documentation for Change Board activities
- Documentation for Taxonomy strategy and approach
- Documentation of Change Board decisions and meeting minutes

Sample Change Board Charter (2)

- Responsibilities

- Address and resolve issues on which the Taxonomy Team is unable to come to consensus
- Review and approve major content changes (for example new facets and high level structural changes)
- Communicate implemented changes to the Advisory Board
- Interface with Advisory Board members about the Taxonomy
- Attend meetings prepared to discuss items on the agenda
- Complete assigned responsibilities in a timely manner
- Promote Taxonomy activities in the enterprise
- Educate users and potential customers about the Taxonomy

- Membership

- Voting members must have expertise in vocabulary management
- Representatives from business functions (non-voting)
- Taxonomy Team representatives (3 members)

- Management

Sample Change Board Charter (3)

- Authority
 - Change Board receives its authority from management
- Accountability
 - Accountable to management
- Voting
 - Change Board strives for understanding, acceptance and support
 - Decisions reached by consensus whenever possible
 - When voting, each member has one vote and all will abide by the outcome. A quorum is required for voting.

Sample Advisory Board Charter (1)

- Purpose
 - Provide strategic direction and promote the taxonomy
- Scope
 - Provide guidance on strategy and functionality
 - Serve as a conduit between business and the team
- Deliverables
 - Documentation of Advisory Board minutes
- Responsibilities
 - Provide future strategic direction
 - Promote and support taxonomy in the enterprise
 - Act as a conduit between potential customers, users, and the taxonomy team

Sample Advisory Board Charter (2)

■ Membership

- Voting members must understand use and value of controlled vocabularies.
- Should be opinion leaders in information management
- Able to clearly communicate and promote the Taxonomy
- Should be five members with representatives from the business units and one Library representative. Selection based on Advisory Board recommendations
- Meet quarterly

■ Authority

- The Advisory Board receives its authority from the Libraries