STARTING A TAXONOMY PROJECT

Case Study: eCommerce Product Taxonomy

#slataxo

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Company Background
User Need
Challenges
Project Goals
Chosen Method
Implementation
Key Learnings
COMPANY BACKGROUND

- eCommerce site dedicated to one-of-a-kind design, antiques and luxury goods

- Marketplace platform of 2000 dealers = 100% user generated content

- 11 years old = Lots of user data

- Initiative to improve the Buyer Experience
COMPANY BACKGROUND
USER NEED

- Implement a classification system that allows dealers to describe their items accurately

AND

- Allows buyers to easily find what they are looking for

- Without overburdening the user
CHALLENGES

- Ignore MECE principle

  - **Mutually Exclusive, Collectively Exhaustive** (McKinsey)
    - a way of grouping information used in Consulting, but these principles are useful for creating categories
  
  - **Inconsistent** label naming strategy
    - Glass and Pitchers under Serving
    - Bronzes, Carvings, Lacquer under Other
  
  - **Redundant** categories
    - Chairs, Armchairs and Side Chairs are different subcategories under Seating
  
  - **Duplicate** categories
    - Desks as a subcategory under Tables and under Case Pieces
    - Rugs under Carpets and under Other
  
  - Like items and similar categories **not grouped together**
    - Tea Canisters under Other; Tea Sets under Serving
    - Tobacco Accessories under Other; Ashtrays under Serving
    - Inkwells and Desk Accessories are separate categories
CHALLENGES

- Misrepresented categories
  - Antiquities under Folk Art
  - Tribal Art under Folk Art
  - Figurines under Serving
  - Ashtrays under Serving
  - Category simply called Other, including 64 subcategories – a mix of furniture and decorative items

- Approximately 2000 new items uploaded every week & classified by users
  - Inventory constantly changing
  - Diversity of users uploading content
    - Differing levels and areas of expertise, technology aptitude, etc
  - Increasing number of dealers based outside the US
    - Language problems; upload tools not localized
PROJECT GOALS

- Improve “findability”
  - allow buyers to find relevant/desired items on the site = increase conversion (click-through, contact dealer, sales)
  - introduce new users to the site (by improving SEO)
- Reduce number of miss-categorized items
  - Approximately 35%-40% of items are uploaded with a categorization error every week
- Avoid category gaps that lead to unclassifiable items
  - Ex: Sewing tables
- Create sustainable structure that can support growth and future inventory needs
METHOD

What are we describing? (Scope)

- Conducted audit of inventory on the site
  - 100,000+ furniture items, lighting elements, decorative objects, collectibles, architectural elements
  - Settees, chandeliers, pier mirrors, antique tall case clocks, carnival art, trade signs, carpets, creamware tea sets, art furniture

- Reviewed attributes and identified attribute gaps
  - Antiques, modern and contemporary pieces
  - By well-known makers and unknown provenance (attribution)
  - Variable/non-standard sizes (e.g. scatter sizes for tribal rugs)
  - Materials and techniques (e.g. burl wood, eglomized, gilt, flat weave, hooked)
  - Pieces from all over the world (e.g. French antiques, English Silver, Turkish Rugs)
Sofa or Couch?

What do others call it?

- Competitive analysis
  - Auction houses, similar design/décor sites
- Consulted with experts and top dealers for each category
  - Appraisers, resources such as Yale Furniture Study, Period rooms at Brooklyn Public Library
- Researched controlled vocabularies:
  - Getty ULAN, Getty AAT, Categories for the Description of Works of Art, Geographic name lists
How do buyers look for it?

- Keyword research
  - Google Adwords Keyword tool
  - Google Trends
- Site-based search keyword analysis
  - Search logs
- User studies
  - Real-time, monitored interview of users given a task to perform on our site while we observe and record (audio, screenshots, notes)
IMPLEMENTATION

- Update database, tables, relationships between items, categories and attributes

- Update classification tools
  - Used by dealers and
  - Used by internal admin (curation team, category managers, me)

- Reclassify existing inventory

- Introduce controlled vocabularies for attributes
  - Creator names, Country of Origin, Condition & Wear, Styles

- Notify dealers about the changes to their tool and about new classification structure
IMPLEMENTATION

- Improving search & browse experience
  - Implement keyword-rich meta-tags, meta titles on html pages
  - Implement synonym rings for search (in development)
  - Include popular search terms for search auto-complete feature
    - Reduces 0 results by avoiding typos, ambiguous terms, etc
  - Implement Product schema: [http://schema.org/Product](http://schema.org/Product)
  - Implement Goodrelations schema: [http://www.heppnetz.de/ontologies/goodrelations/v1.htm](http://www.heppnetz.de/ontologies/goodrelations/v1.htm)
  - Implement redirects, canonical tags, update sitemap
    - Buillotte lamps -> table lamps
IMPLEMENTATION

- For this site, implementation and maintenance was manual for many reasons.
  - Cost
  - Database architecture re-design was simultaneous
  - Reticence on the part of site owners

- Other options:
  - Automated systems for classification based on descriptive content
  - Using search feature to allow dealers to query site to help them place hard-to-classify items near relevant items
  - Develop in-house taxonomy management/development tool
  - License a taxonomy development tool
RUGS OR CARPETS?

Semantics

- How are they described?
  - By Origin (Indian, Turkish, Persian, Navajo, Irish) and Region (Amritsar, Agra, Donegal)
  - By Technique (flat-weave, hooked, knotted-pile, hand-woven)
  - By Style (Herati design, Arts and Crafts, Art Nouveau)

- What should we call them?
  - Traditionally, rugs are smaller than carpets
  - Today, we use ‘carpet’ often to mean ‘wall-to-wall carpeting’; this definition does not apply to antique/collectible carpets
  - Origin/Regional designations also encapsulate styles, techniques and colors common to the region
Khotan Rugs

- From ancient city of Khotan in present day Uygur Autonomous Region of Xinjiang (Chinese Turkistan)
- Also known as Samarkand Rugs
- Incorporate Asian motifs, lattice-patterns

Rugs and Carpets (BT)
- Central Asian (NT)
  - Khotan Rugs (NT)
  - Samarkand Rugs (VT)
INDIAN AGRA RUG

- From city of Agra (Taj Mahal) for Mughal Empire, also produced in Lahore

- Back in vogue during British colonial period

- Designs often based on classical Persian motifs

- Rugs and Carpets (BT)
  - Indian Rugs (NT)
    - Indian Agra Rugs (NT)
    - Moghul Carpets (VT)
Turkish Kilim Rug

- Kilims can be Persian, Turkish, Moroccan, from the Balkans
- Flat-woven (pile-less)
- Tapestry style designs, geometric
- Rugs and Carpets (BT)
  - Turkish Rugs (NT)
    - Turkish Kilim Rugs (NT)
    - Moroccan Kilim (RT)
SPANISH SAVONNERIE CARPET

- Savonnerie Carpets originally French, inspired by Turkish rugs
- Knotted-pile, Ghiordes knot
- Floral motifs, rococo elements
- Rugs and Carpets (BT)
  - Western European Rugs (NT)
    - Spanish Savonnerie Rugs (NT)
    - French Savonnerie Rugs (RT)
IRISH DONEGAL CARPET

- From County Donegal, Ireland
- Wool, handwoven
- Celtic designs, Arts & Crafts, Art Nouveau, border designs
- Rugs and Carpets (BT)
  - Western European Rugs (NT)
    - Spanish Rugs (NT)
    - Irish Rugs (NT)
    - Donegal Carpets (NT)
NAVAJO RUG

- Tribal weaving from Four Corners region of US
- Flat tapestry-woven, wool
- Geometric patterns

Rugs and Carpets (BT)
- North and South American Rugs (NT)
  - Navajo Rugs (NT)
  - American Hooked Rugs (NT)
**American Hooked Rug**

- From Northeast US and Eastern Canada
- Hooked, pile, made from linen, jute, flax, hemp
- Floral designs, scenes, people

**Rugs and Carpets (BT)**
- North and South American Rugs (NT)
  - American Hooked Rugs (NT)
  - Navajo Rugs (NT)
IMPLEMENTATION: RUGS AND CARPETS

- Mix of Styles, Periods, Shapes and Regions
  - Modernist, Art Deco, Arts and Crafts
  - Chinese
  - Runners vs. Wide Runners vs. Turkish Kilim Runners
  - New Carpets, Vintage European

- Not mutually exclusive
  - Kilim vs. Turkish

- Some regions were over-represented and over-developed
  - 15 Persian Rug categories
  - 4 Indian Rug categories

- While others were very general
  - Kilim (no way to filter down to Moroccan Kilim, Turkish Kilim, Persian Kilim, etc)
  - American Hooked, Rag and Indian rugs all one category
# Implementation: Rugs and Carpets

<table>
<thead>
<tr>
<th>OLD</th>
<th>NEW</th>
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<tbody>
<tr>
<td>Central Asian</td>
<td>Central Asian</td>
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<tr>
<td>East Turkestan</td>
<td></td>
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<tr>
<td>Modernist</td>
<td></td>
</tr>
<tr>
<td>New Carpets</td>
<td></td>
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<tr>
<td>Samarkand &amp; Khotan</td>
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<tr>
<td>Tibetan</td>
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<tr>
<td>Turkmenistan</td>
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<tr>
<td>Art Deco</td>
<td>Chinese</td>
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<tr>
<td>Chinese</td>
<td>Indian</td>
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<tr>
<td>Indian</td>
<td>Indian Agra</td>
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<tr>
<td>Indian Amritsar</td>
<td>North Indian</td>
</tr>
<tr>
<td>North Indian</td>
<td>Moroccan</td>
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<tr>
<td>American Hooked, Rag &amp; Indian</td>
<td>North &amp; South American</td>
</tr>
<tr>
<td>Modernist</td>
<td>Other</td>
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<tr>
<td>Other</td>
<td>Persian</td>
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<tr>
<td>North-west Persian</td>
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<td>Persian</td>
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<td>Persian Bakhtiari</td>
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<td>Persian Bakshaish</td>
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<td>Persian Bidjar</td>
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<td>Persian Farahbun</td>
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<td>Persian Kashan &amp; Malayer</td>
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<td>Persian Khorassian</td>
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<td>Persian Khorasan</td>
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<td>Persian Kurd</td>
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<td>Persian Serapi</td>
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<td>Persian Sultanabad</td>
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<td>Persian Tabriz</td>
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<td>Persian Tribal</td>
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<tr>
<td>Runners</td>
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<tr>
<td>Samarkand &amp; Khotan</td>
<td></td>
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<tr>
<td>Wide Runners (Kelleh)</td>
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<tr>
<td>Caucasus</td>
<td>Russian and Caucasian</td>
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<tr>
<td>Karabagh</td>
<td></td>
</tr>
<tr>
<td>Russian</td>
<td></td>
</tr>
</tbody>
</table>

(OLD cont’d) (NEW cont’d)

- Art Deco
- Scandinavian
- Kilim
- Turkish
- Turkish Oushak
- Turkish Sivas, Hereke & Giordes
- Wide Runners (Kelleh)
- Art Deco
- Western European
- Arts & Crafts
- Aubusson, Axminster & Savonnerie
- Bessarabian & Needlework
- European
- Other
- Spanish
- Vintage European
- Other
- More Rugs and Carpets
KEY LEARNINGS

- Classification errors have decreased

- Feedback:
  - Easier navigation for buyers, better browse experience
  - Easier upload process for dealers, less time to upload per item
  - Easier review process for curation team, less edits needed

- Google Analytics tracking shows increased traffic to category landing pages
Key Learnings

- **Due diligence**
  - Research, ask, document, ask someone else
  - Communicate to stakeholders, get them on board, address their concerns

- **Plan**
  - Cost, resources, (timing)?
  - Identify dependencies

- **Test**
  - User studies (beta testing), identify use cases

- **Launch!**
  - Implement your plan

- **Gather Feedback**
  - Establish modes of communication, suggestions, complaints

- **Iterate**
  - Improve
THANK YOU!

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