Understanding what's already been done in your problem area

CS4784: HCI Capstone

Virginia Tech

Instructor: Dr. Kurt Luther

Preview

- Literature review
- Competitive analysis
- Upcoming milestones

CHCI Hack+Snack

- Every Friday, 2-5pm (hack) and 5pm+ (snack)
- Learning Studio, Moss Arts Center
- HCI undergrads, grad students, faculty welcome



Literature review

- What have researchers learned about the area you're working in? The problem you may be trying to solve? Failed attempts and solutions?
- Three broad sources to consult
 - Computer science research (tools, algorithms)
 - Research in your application domain (tourism, games, photo sharing)
 - HCI research combining the above (if you're lucky!)

Lit review starting points

- Digital libraries
 - ACM Digital Library, IEEE Xplore Digital Library (both free on campus)
 - Big HCI conferences: CHI, CSCW, UIST
- "Survey" articles
- Personal websites of experts, professors, grad students
- Online course syllabi
- Research blogs—often present complex research in a more digestible way
- YouTube—lots of research papers include short video figures
- News articles

Annotated bibliography

- A list of (mostly primary) sources cited in the appropriate format (ACM format preferred)
- Each source has an annotation provided by you
 - Summarize: Paraphrase (don't copy verbatim) the key information—methods, findings, etc.
 - Assess: Is this a useful source? Is it biased?
 - Reflect: How does it relate to your project? What did you learn from it or how did it change your thinking?
- Not all entries need to be super useful—also a record of what you read and can safely ignore

Source: Purdue OWL

Competitive analysis

- A way to compare feature sets across a market
- Often used by marketing in determining requirements for a product release
 - See what competition is doing, and match it
- Careful: competitive analysis makes an implicit assumption that:
 - Features are important (instead of goals)
 - The features competitors choose are good ones

Source: John Kolko

Finding competitors

Searching online

- Generate a set of keywords that describe the service you intend to offer
- Search these keywords online
- Look for at least 10 unique "best of" articles and make a list of the products/services mentioned
- If results are too diffuse (no clear winner) then keywords might be too unusual or vague
- If results are too similar (everyone agrees) then your keywords might be too conventional or narrow
- Ask experts in the field

Source: Nielsen and Mack

Competitive analysis

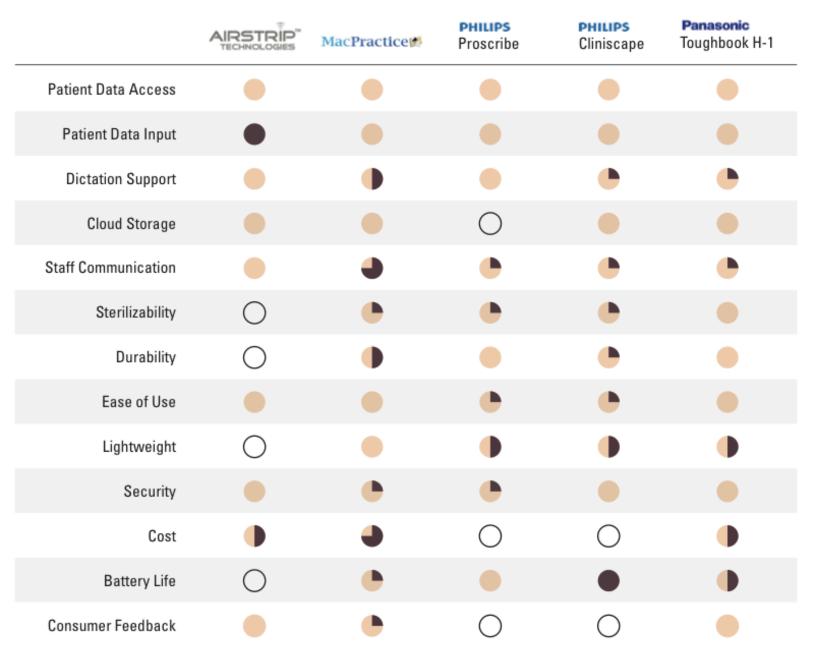
- Using tasks (or scenarios), walk through competitors' products and record:
 - Features included in the product
 - Any new and insightful innovations
 - Any problems you immediately see with competitors' basic frameworks
- Use a grid (Excel, HTML table, etc.), record a visual representation of each step or key point through the UI
- As you look at more products, go back and fill in missing info from previous products

Source: John Kolko

Competitive analysis

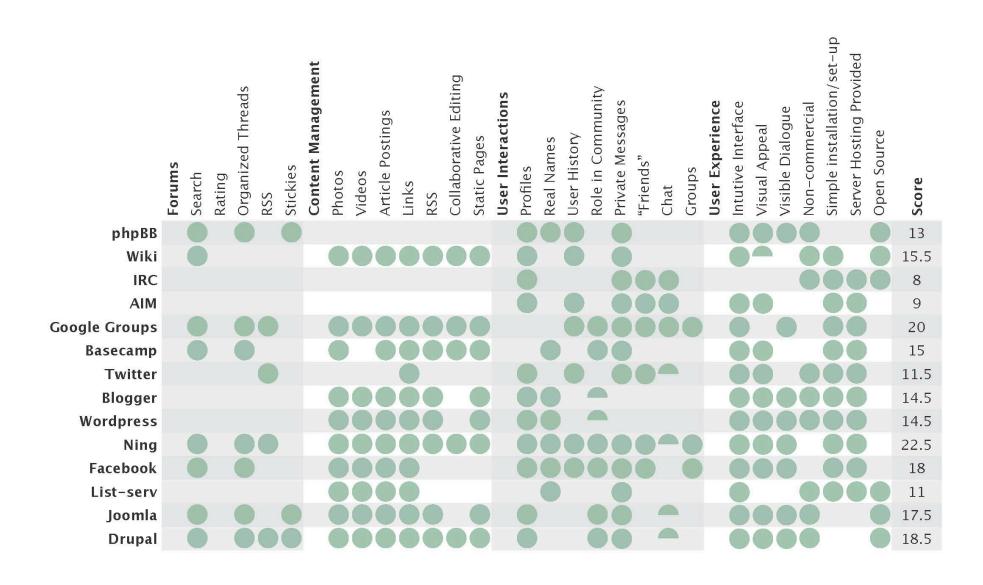
	CNN	msNBC	News.com	Savannahnow
Search mechanism	Simple search located on the top/left of the main page	Simple search located on the right/center of the main page	Directly on top/right of the main page; offers search of news, cnet or all of the internet	None on the main page; forces user to the left nav, and then offers "power search"
Advertising	Banner on the top; integrated push content from partners (Time, Business 2.0, Sports Illustrated)	Banner in the center; huge take- over ads prevent reading of content; ads for NBC everywhere	Banner on the top	Ads everywhere; border on the top, right and left of ads limits content to a small area

Source: John Kolko



Great
Good
Satisfactory
Unsatisfactory
Unacceptable
N/A or Varied

Source: Swift



Source: Adam Williams

SWOT matrix

- Strengths, Weaknesses, Opportunities, Threats
- Developed by Albert Humphrey in the 1960s
- Can be applied to yourself, your product, your organization, or the competition
- Only use precise, verifiable statements
- Prune long lists of factors, rank the ones you keep, and focus on the top ones

Source: MindTools

SWOT matrix

Strengths

- What advantages does your organization have?
- What do you do better than anyone else?
- What unique or lower-cost resources can you draw upon that others can't?
- What do others see as your strengths?

Weaknesses

- What could you improve?
- What should you avoid?
- What are people likely to see as your weaknesses?

SWOT matrix

Opportunities

- What good opportunities can you spot?
- What interesting trends are you aware of?
 - Changes in technology, policy, social patterns...

Threats

- What obstacles do you face?
- What are your competitors doing?
- Is technology changing in a way that threatens your position?

Source: MindTools

TOWS strategic alternatives

	External Opportunities (O) 1. 2. 3. 4.	External Threats (T) 1. 2. 3. 4.
Internal Strengths (S) 1. 2. 3. 4.	SO "Maxi-Maxi" Strategy Strategies that use strengths to maximize opportunities.	ST "Maxi-Mini" Strategy Strategies that use strengths to minimize threats.
Internal Weaknesses (W) 1. 2. 3. 4.	WO "Mini-Maxi" Strategy Strategies that minimize weaknesses by taking advantage of opportunities.	WT "Mini-Mini" Strategy Strategies that minimize weaknesses and avoid threats.

Source: MindTools

Upcoming milestones

- Lit review / annotated bibliography
 - Minimum 30 sources with annotations
 - Minimum 75% must be scholarly sources
 - Deliverable is written document with annotated bib plus 2-3 page written summary of overall findings
- Competitive analysis
 - Minimum 10 products/services
 - Minimum 10 dimensions
 - Deliverable is comparison matrix plus 2-3 page written summary of overall findings

Next class

- Monday: Service design
- Due this week
 - Final group membership due this Friday
 - First press release due this Friday midnight
- Due next week
 - Lit review and competitive analysis due next Friday
 - Meeting with sponsor due next Friday