

**Visualization systems as navigational aids
around the web of personal information**

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Mindmaps in a browser ?

The screenshot shows a Mozilla Firefox browser window with the address bar displaying <http://www.lifehack.org/>. The main content area features a mind map titled "Mind Map Guidelines" in a central yellow oval. The mind map branches into four main categories: "Clarity", "Use", "Keywords", and "Style".

- Clarity** (blue branch):
 - outlines
 - heirarchy
 - order (with sub-branches 1, 2, 3)
 - Links
- Use** (purple branch):
 - Colors
 - Emphasis
 - images (with a smiley face icon)
 - codes (with sub-branches a, b)
 - dimension
- Keywords** (green branch):
 - lines
 - word image alone
 - connect
 - center
 - radiate out
 - organised
 - central: thicker, more important (with a thick green line example)
 - outer: thinner, less important (with a thin green line example)
 - style
 - organic
 - free flowing
 - length: same as word, image
 - case
 - print
 - UPPER and lower
- Style** (purple branch):
 - personal develop
 - develop

The browser's sidebar on the left shows various bookmarks and tabs, including "Stepcase Lifehack: Produ...", "Flickr: Ravenelle's Photostream", "iGoogle", "Seagate 1TB USB 2.0 Ext...", "popurls@ | popular urls to th...", "Google Reader (9)", "Lifehacker, tips and downlo...", "io9. Strung out on science fi...", "Gizmodo, the Gadget Guide", "Viral Video Chart - Top 100 V...", "Twitter", "Search Add-ons :: Firefox Add...", "Tab Mix Plus Dev-Build 0.3.6.X...", "Woot: One Day, One Deal (SM)", "Hot Deals, Online Coupons, ...", "dh Dealhack: Free Online Coup...", "dealnews.com - Find the low...", "Hot Deals - SlickDeals.net Fo...", "Free online coupons, Best d...", "Dark Roasted Blend", "dd deputydog", "Neatorama", "Photo Basement - My Inter...", "Pixdaus, God Gave Us Pics!", "The Internet Is Terrible", "WallStreetFighter", "WebUrbanist", and "(Untitled)". The status bar at the bottom shows "Done" and "FoxyProxy: Patterns".

Outline

A Survey:

- Brief view of existing systems
- Design implications
 - from studies of information organization systems
- Future work

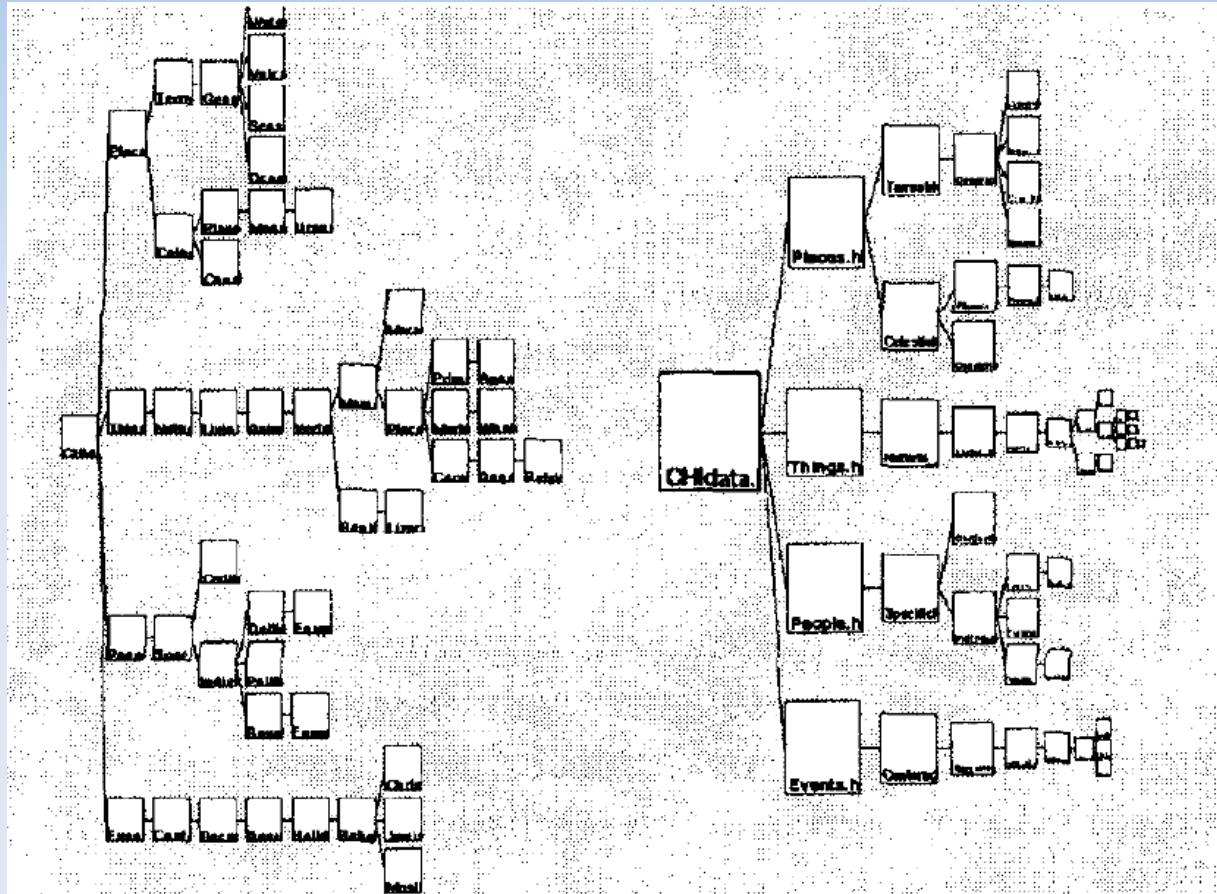
Existing systems

That have characteristics of my ideal system

- Padprints
- Footprints
- WebForager, WebBook
- DataMountain
- ScratchPad
- InsightFinder

Structural, Spatial navigational support

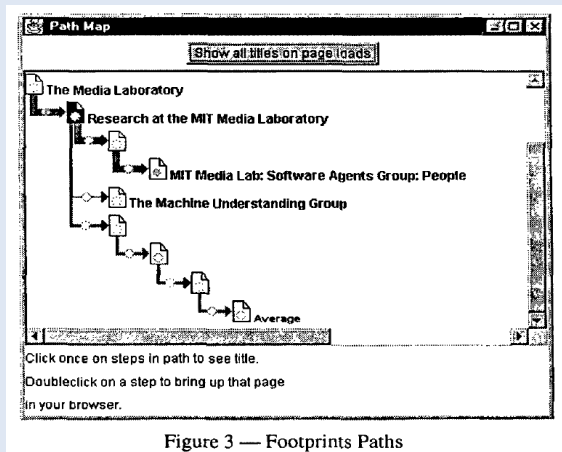
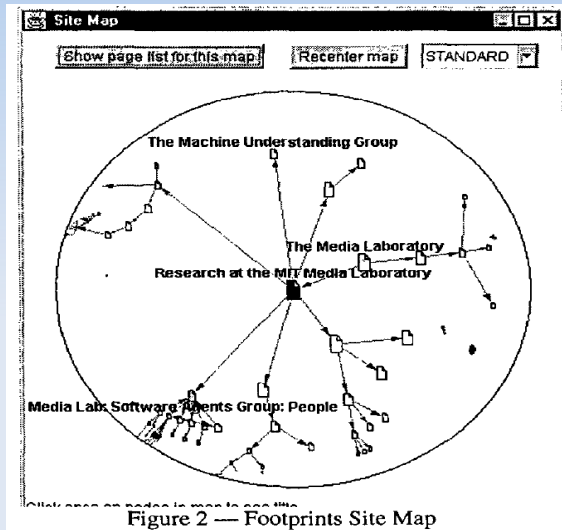
PadPrints



Hightower, R. R., Ring, L. T., Helfman, J. I., Bederson, B. B., and Hollan, J. D. 1998. Graphical multiscale Web histories: a study of padprints ⁶

FootPrints

Collective foraging



Research at the MIT Media Laboratory

Media Laboratory Project List
Media Laboratory Publications List
Media Laboratory United States Patents (PDF Format)

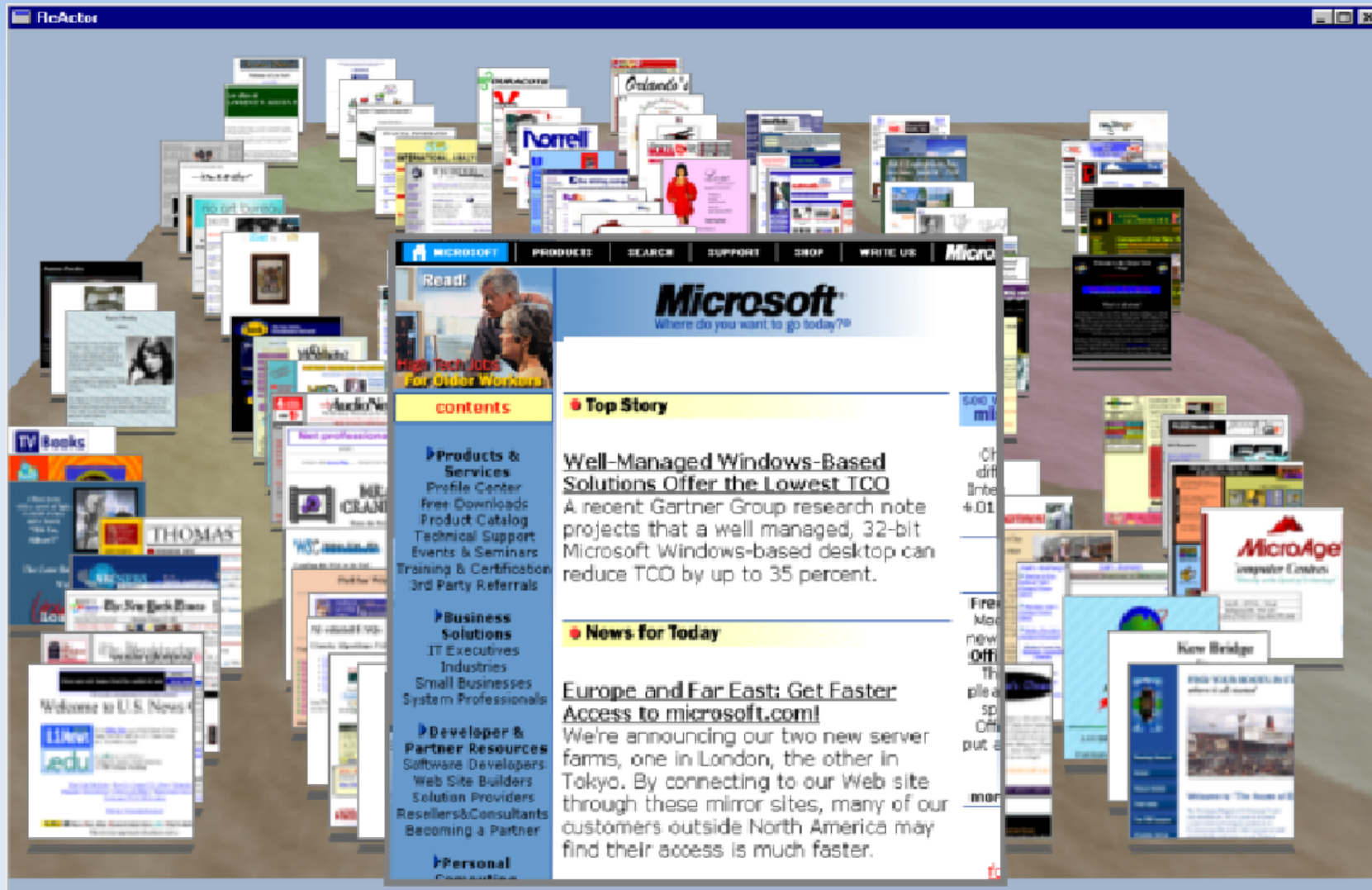
Research Consortia

- [Course Life \(CL\)](#)
- [News in the Future \(NF\)](#)
- [Things That Think \(TTT\)](#)
- [Toys of Tomorrow \(TOT\)](#)

Research Groups

- [Aesthetics and Computation \(8%\)](#)
- [Affective Computing](#)
- [Electronic Publishing](#)
- [Epidemiology and Learning](#)
- [Industrial Computer Architecture](#)
- [Gesture & Narrative Language](#)
- [Intelligent Graphics](#)
- [Interactive Cinema](#)
- [Machine Listening](#)
- [Machine Understanding \(8%\)](#)
- [MicroMedia](#)
- [Object-Based Media](#)
- [Quests of the Future](#)
- [Personal Information Architecture \(8%\)](#)
- [Physics and Media](#)
- [Social Media](#)
- [Software Agents \(58%\)](#)
- [Spatial Imaging](#)
- [Sonic Characters](#)
- [Tangible Media \(8%\)](#)

DataMountain

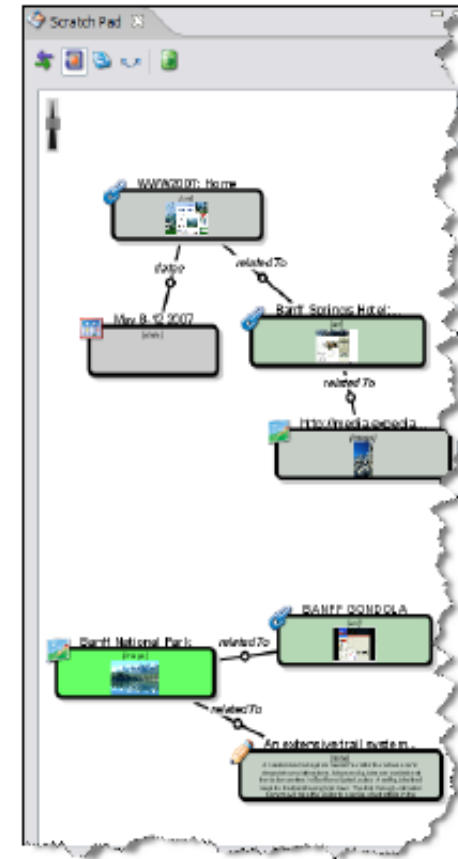
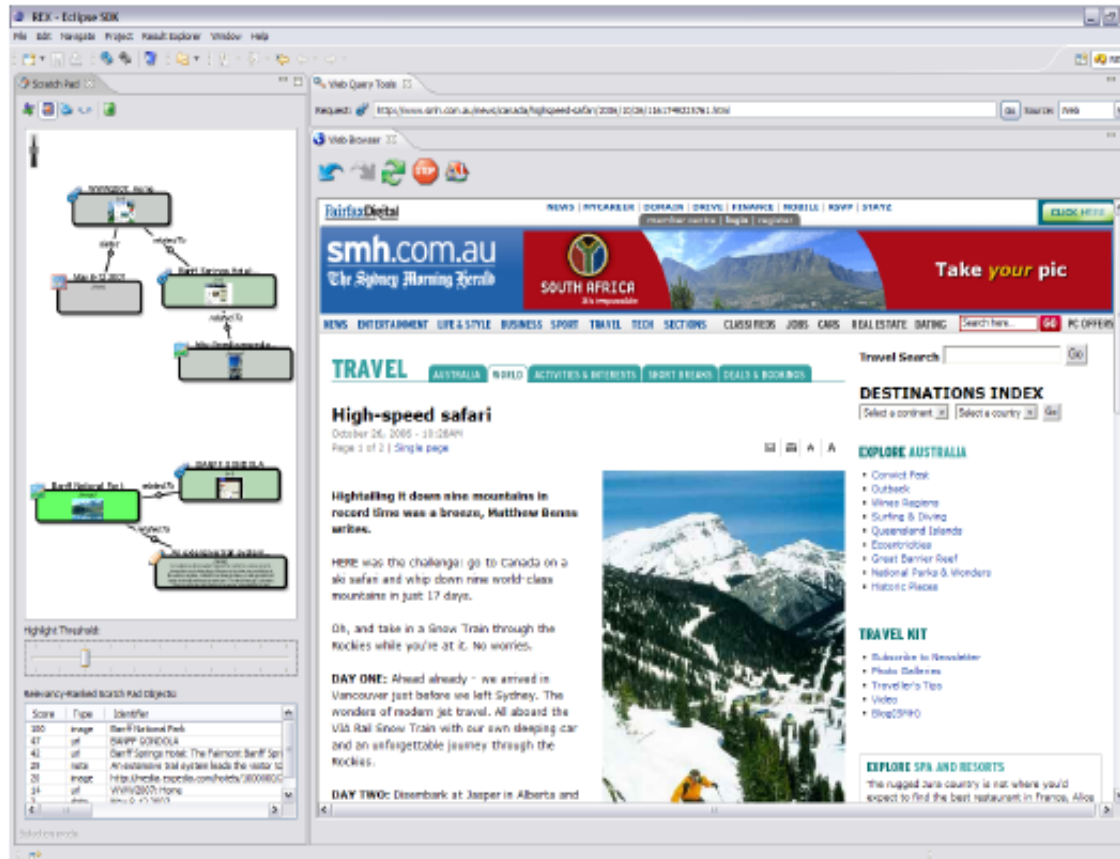


Web forager



Semantic navigational support

ScratchPad



InsightFinder

Context based recommendation

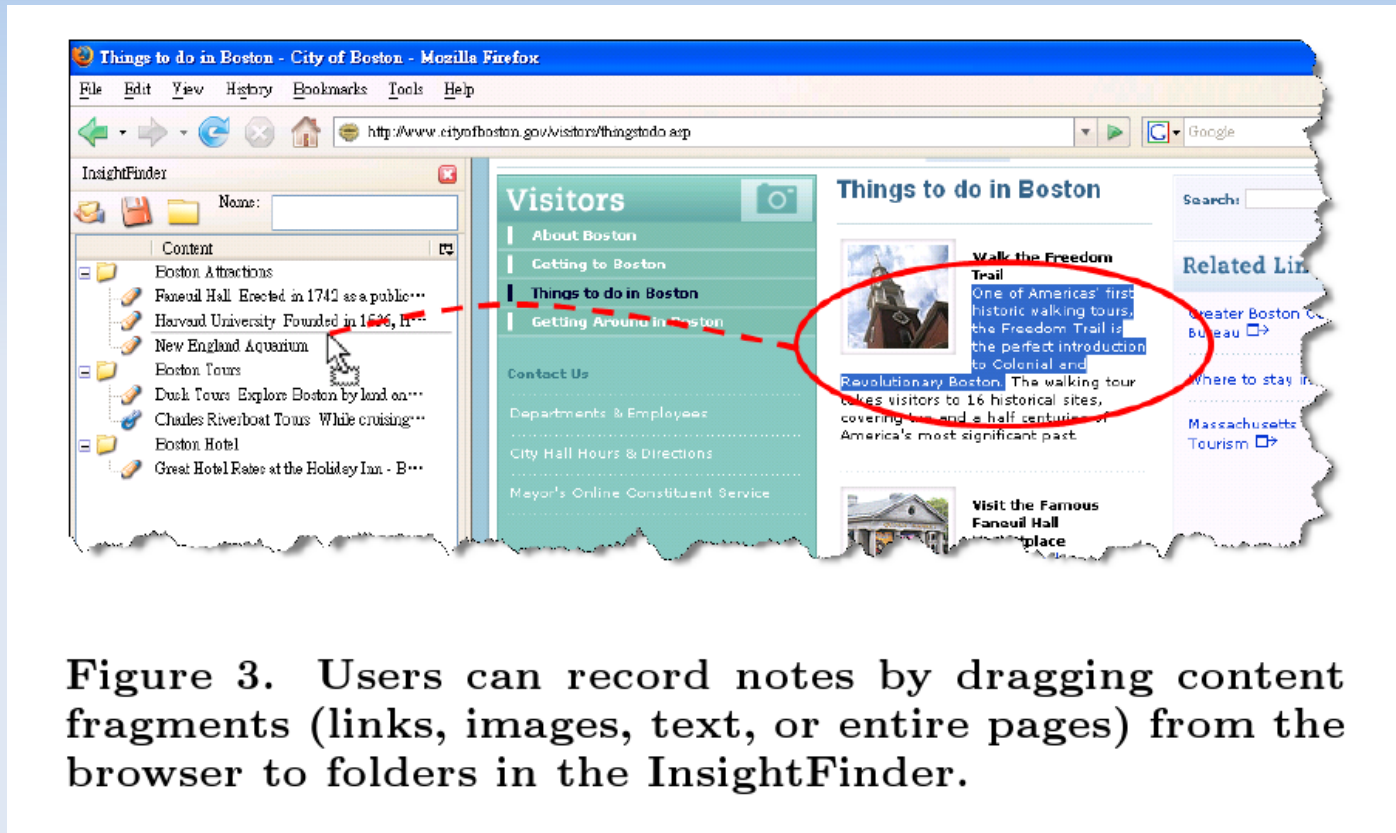


Figure 3. Users can record notes by dragging content fragments (links, images, text, or entire pages) from the browser to folders in the InsightFinder.

InsightFinder

Context based recommendation

The screenshot shows a Mozilla Firefox browser window displaying the TripAdvisor website. The InsightFinder interface is overlaid on the page, showing a sidebar with a file explorer view of website content. The main content area displays recommendations for Boston attractions, restaurants, articles, and smart deals. The sidebar shows a tree view of content with a score and recommended section for each item. The main content area is divided into sections: Boston Attractions and Dining, Boston Articles and Guidebooks, and SmartDeals. The Boston Attractions and Dining section lists 10 top attractions, including Freedom Trail, Boston Duck Tours, Faneuil Hall Marketplace, North End, USS Constitution (Old Ironsides), Fenway Park, Boston Children's Museum, Isabella Stewart Gardner Museum, Boston Public Garden, and Museum of Fine Arts. The Boston Restaurants section lists 10 top restaurants, including Radius, The Federalist, Tonic, Atlantic Fish Co., Excelsior, B & G Oysters Ltd., The Capital Grille, Bristol Lounge, Taranta, and Tacos El Charro Mexican Restaurant. The Boston Articles and Guidebooks section lists 4 articles, including TripAdvisor's Boston Itinerary, "Boston," Concierge.com/Condé Nast Traveler, "The Taming of Southie," Jun 17, 2007, New York Times (free registration required), and "Once a Hub of Strife, Boston Wins Black Tourists," Dec 9, 2006, New York Times (free registration required). The SmartDeals section lists 3 deals, including Hotel Commonwealth - save up to 49%, Jurys Boston Hotel, and Radisson Hotel Boston - save up to 36%. The sidebar shows a table of content with the following items:

Score	Recommended Section
2.038	Boston Attractions and Dining ...Bo...
1.858	View all Boston hotels ...View all B...
1.600	Boston ...Boston Vacation Packages
1.584	Deal on ... Boston Hotels
1.402	Boston highlights to go! ...Boston hi...
1.345	Boston Hotel Recommendations ...B...
1.304	Nearby Cities ...Brookline
1.261	Home ... > Boston Tourism
1.122	Boston Vacations - Boston Tourism ...
0.935	Boston Recent Traveler Reviews ...
0.935	Find a great Boston hotel deal! Smart...
0.935	Boston Traveler Forum ...Boston Tr...
0.918	Top Boston Attractions ...View all ...
0.843	Search ... (e.g., Boston hotels, Los V...
0.752	Find a great hotel based on web-vid...

Design implications

- Visibility (and reminding)
- Integration with existing work-flow
- Co-Adoption (affordance for people who work as a group to adopt the system)
- Scalability (with respect to the type or amount of information that the user wants to process)
- Return on Investment

Jones, E., H. Bruce, et al. (2008). I Give Up! Five Factors that Contribute to the Abandonment of Information Management Strategies

Future work

Associate information scents with resources indicating:

1. The cost of foraging a resource

URLs, for example

2. The chances that it will be eventually used as intended

Bookmarks, for example

- based on your history with other pieces of similar information
- based on the information's history with other similar people

Prevent us from becoming information gluttons !

Thank you

Bookmarking in nature



Spatial memory

Clark's nutcracker :

- buries 30k seeds across an area of 100 sq.miles
 - places a stone on top of the stash
 - recovers 70% of the nuts buried under several feet of snow
 - 278+ days
-
- But human spatial memory is limited to around 10 objects and suitable only for short-term