Web 2.0 features

Collective intelligence
Design for Collective Intelligence

Chapter 6
Complex system  "a system composed of interconnected parts that as a whole exhibit properties not obvious from the properties of the individual parts."
Complex systems in nature
Ant colonies
Ecosystems
<table>
<thead>
<tr>
<th>Sector</th>
<th>NASDAQ Composite</th>
<th>S&amp;P 500 Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINANCE</td>
<td>112.17</td>
<td>1165.69</td>
</tr>
<tr>
<td>TELECOMMUNICATIONS</td>
<td>2957.81</td>
<td>902.63</td>
</tr>
<tr>
<td>COMPUTER</td>
<td>10252.29</td>
<td>179.73</td>
</tr>
<tr>
<td>TRANSPORTATION</td>
<td>2575</td>
<td>17.65</td>
</tr>
<tr>
<td>SUSTAINABLE</td>
<td>-0.3%</td>
<td>1994.43</td>
</tr>
<tr>
<td>TELEMETRY</td>
<td>+1.1%</td>
<td>+1.0%</td>
</tr>
</tbody>
</table>

Economics
Traffic
Immune systems
Complex systems on the web
Collective intelligence

“is based on the idea that by aggregating the behavior of many people, we can gain novel insights.”
Collective intelligence

“even though no individual is right all the time, in the collective a large number of users can be amazingly accurate in their decisions and choices.”
Wisdom of the crowd

A live experiment!
Wisdom of the crowd

What is the weight of one volume of the Encyclopedia Universalis?
aggregates the collective knowledge of users in a single encyclopedia
aggregates the collective stories and opinions of readers to provide relevant news
aggregates the collective opinions of review readers to determine which reviews are helpful
aggregates the links and content of web pages to display adequate ones in search results
aggregates the collective ratings of movie fans to provide recommendations
How aggregators work

1. Initial action - content submission
2. Display - content publication
3. Feedback - content evaluation
1. news story
2. new, popular
3. digg, share

<p>| | | |</p>
<table>
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<tr>
<td><strong>digg</strong></td>
<td><strong>amazon.com</strong></td>
<td><strong>Google</strong></td>
</tr>
<tr>
<td>news story</td>
<td>product reviews</td>
<td>web page</td>
</tr>
<tr>
<td>new, popular</td>
<td>useful, recent</td>
<td>relevancy</td>
</tr>
<tr>
<td>digg, share</td>
<td>is this helpful? comments</td>
<td>links, clicks on results</td>
</tr>
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</table>
1 Initial action

Flow of content must be regulated to get new content but avoid SPAM.
Barrier of entry

Informal - exclude subtly through **design** that attracts a certain audience

**Formal** - exclude blatantly, requires an **account**, software or other measures

**Extreme** - exclusivity, **invitation-only** such as asmallworld.com†
1) Submit a story
2) Digg verifies if the story has already been submitted

Cool, this story has already been submitted.
Digg the story yourself to make your vote count.

Yahoo! Looses Mobile Giant Opera to Google

readwriteweb.com — Starting on the first of next month, the widely popular mobile browser Opera will switch from offering Yahoo! to using Google as its default search engine. While Yahoo! has its own relatively sophisticated mobile offerings, the company can't be happy to lose Opera to Google
3) Digg allows you to customize thumbnail and tags

4) Digg checks if you are human
Tagging content helps to aggregate content (bookmarks) in additional helpful ways (adding tags).
2. Aggregate display

Display
content publication

Initial action
content submission

Feedback
content evaluation
Content is considered more important if displayed:

- More often
- On the homepage
- Higher in ranked display
- At the top of the page
Digg homepage

Digg new story page
Types of ordering

- Chronological
- Relevance
- Social
- User-based views
- Collaborative filtering
- Participant ranking
- Popularity in time range
## MusicLab Study

Download songs you like from a list

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### Control groups

<table>
<thead>
<tr>
<th>Song Name</th>
<th>Downloads</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARKER THEORY: &quot;she said&quot;</td>
<td></td>
</tr>
<tr>
<td>THE FASTLANE: &quot;til death do us part (i dont)&quot;</td>
<td></td>
</tr>
<tr>
<td>SELSIUS: &quot;stars of the city&quot;</td>
<td></td>
</tr>
<tr>
<td>STUNT MONKEY: &quot;inside out&quot;</td>
<td></td>
</tr>
<tr>
<td>BY NOVEMBER: &quot;if i could take you&quot;</td>
<td></td>
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<tr>
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<td></td>
</tr>
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<td>HYDRAULIC SANDWICH: &quot;separation anxiety&quot;</td>
<td></td>
</tr>
<tr>
<td>SILENT FILM: &quot;all i have to say&quot;</td>
<td></td>
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<tr>
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<td></td>
</tr>
<tr>
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### Influence conditions

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<td>THE FASTLANE: &quot;til death do us part (i dont)&quot;</td>
<td>103</td>
</tr>
<tr>
<td>SELSIUS: &quot;stars of the city&quot;</td>
<td>62</td>
</tr>
<tr>
<td>STUNT MONKEY: &quot;inside out&quot;</td>
<td>56</td>
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<tr>
<td>BY NOVEMBER: &quot;if i could take you&quot;</td>
<td>55</td>
</tr>
<tr>
<td>FORTHFADING: &quot;fear&quot;</td>
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<td>HYDRAULIC SANDWICH: &quot;separation anxiety&quot;</td>
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<td>SILENT FILM: &quot;all i have to say&quot;</td>
<td>40</td>
</tr>
<tr>
<td>UNDO: &quot;while the world passes&quot;</td>
<td>36</td>
</tr>
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<td>BENEFIT OF A DOUBT: &quot;run away&quot;</td>
<td>32</td>
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[Salganik et al. 2006]
Results - Self fulfilling prophecy

Early leaders maintained lead

Social influence trumped song quality
Site’s goals and ordering

News site values *freshness*, search engine value *relevance*, a social site values *relationships*
Feedback

Initial action
content submission

Display
content publication

Feedback
content evaluation
Implicit
- # sales
- # downloads
- # bookmarks

Explicit
- user ratings
- reviews
- comments
Positive & Negative
Make feedback easy!
Leverage points

a small shift in one thing can produce big changes in everything
Leverage points

where is content displayed?

for how long?

who can provide feedback?

who can submit?

is content ok?

how does it influence display?

who can provide feedback?
Conclusion

Social media are complex adaptive systems

Their goal is to elicit collective intelligence out of noise

Designers can tweak the leverage points of the system to achieve this