

Design Areas of the Knowledge Market

Status

- 1) *Question & Answer Market* *mostly implemented*
 - a. Live System
 - i. Currency award system
 - ii. New question postings, new answers
 - iii. Sort by recency, tag/topic, points, time-to-deadline...
 - iv. Avg point values of questions (to help people decide how much to offer)
 - b. Archive Database of searchable past answers
 - i. Ratings
 - ii. Download/access stats
- 2) *Knowledge Economy / Macroeconomic Dashboard* *partially implemented*
 - a. God View – for system administrators (allows interventions and resetting of system wide values such as expiration times on points)
 - i. Manage points inflows by person or topic
 - ii. Manage expiration times on earned and unearned points
 - iii. Matching/frequent flyer bonus points areas
 - iv. Benchmark indicators of transactions value, frequency, etc.
 - b. User view – for typical users (does not allow interventions)
 - i. Avg question price
 - ii. Avg answer delay
 - iii. Volume of questions
 - iv. Volume of answers
 - v. Velocity of points (analogous to macroeconomic velocity of \$)
- 3) *Credit Assignment & Referral system* *partially implemented*
 - a. Tracks fraction of document that has been reused from previous documents in the database. Obviously this also tracks the fraction of novel content that was not reused.
 - b. Accounts for "baseline" reuse that doesn't actually mean reuse e.g. two documents in English would naturally appear more similar than one in English and one in Chinese.
 - c. Assigns credit for reused material to the original source.
 - i. Credit is measured in terms of fraction of volume.
 - ii. Credit also measured in terms of point value associated with documents. Proportional value is one form. A more sophisticated proportional value measure is the "shapley value" (code can be provided).
- 4) *Team / Prosocial module* *not implemented*
 - a. Help groups dynamically self-form around identity or topic
 - b. Group level metrics (aggregated/averaged individual metrics)
 - c. Group email specific to a team or topic.
 - d. Offers group control over certain documents/sectors of knowledge market resources. So, for example, the "finance group" might have write permission over financial documents where everyone else has read permission.
- 5) *Service Market* *not implemented*
 - a. Exchange where users can request new features be added to any aspect of the knowledge market itself. Requests should be accompanied by point bids offered by the requester. Bids represent amounts the requester will pay if the feature is implemented. This is a recursive design for improving the market itself.

- b. System should allow other users to supplement the bid of any given request. So if John thinks Mary's request is important to him, he can add to her bid (and will also pay to have the feature supplied).
- 6) *Idea Market* *not implemented*
- Users can post suggestions and new proposals (products, lines of business, suggestions) for any kind of new topic.
 - Other users can evaluate and rank these suggestions. Conjoint analysis and voting would be good methods.
- 7) *Prediction Market* *not implemented*
- Allow users to specify upcoming events
 - Allow users to bet on the outcomes using the same virtual currency. An example is the Iowa electronic futures market used for predicting presidential elections.
- 8) *Store/Auction* *not implemented*
- Documents and other goods can be sold
 - Monetary policy can be enforced by buying back points (i.e. auctioning dollars)
 - Users can post items for others to bid on
- 9) *User profiles* *partially implemented*
- Expertise tags
 - Referral screens
 - Group memberships
 - Helpfulness ratings
 - Currency summaries
 - Frequent flyer – gold, silver, platinum status (ties to live questions module)
- 10) *Gallery* *not implemented*
- Feature most useful/highest rated ideas, answers, etc.
 - Feature most prominent people
 - Feature by recent period, by total time, etc.

Design Goal	Example Feature
Encourage numerous / fast answers	Offer matching points. 1 st answer gets automatic ½ point match, 2 nd answer gets automatic ¼ point match. Answer N gets automatic (½) ^N match.
	Original seeker chooses how to allocate his or her bid across all answers before deadline.
Find Answers / Motivate Use	Allow answer sort by (i) recency (ii) point value (iii) rating (iv) questioner (v) answerer (vi) questioner rating (vii) answerer rating
	Offer intuitive help system
	Offer training
	Visual display of social networks of askers and answerers linked by expertise (polar & Cartesian plot)
Motivate Answers / Contributions	Provide aspirational levels like frequent flyer levels. As person climbs in postings (both Q&A) their matching points go up, just like gold and silver elite levels for

	airlines. Proposal is 8/15 population = baseline, 4/15 pop = silver, 2/15 = gold, 1/15=platinum.
	Create tree structured credit tracking system for documents. So when parts of a word file or ppt file are reused, credit goes back to the original author. This should mimic the credit system for Open Source. The technology can rely on something like TurnItIn plagiarism detection.
	Recognize monthly contributors. E.g. lunch with CEO
	Allow anonymous posting of answers
	Visual display of social networks linked by expertise (polar & Cartesian plots)
Motivate Questions	Points expire. Unearned points expire faster than earned points.
	Allow anonymous posting of questions
Encourage Market Liquidity	Allow trading of anything, not just Q&A.
	Provide matching funds for questions that some manager, IT dept, or CEO finds really important. Higher level folks can authorize more matching points.
	Manage point conversion rate in terms of tangible rewards (lunches, t-shirts, etc.)
Value / Demand Curve Analysis	Track initial point value paid. Track % unanswered questions.
	To get 2 nd point value estimate, offer to buy removal of answer.
	Track complexity of knowledge objects
	Track frequency of both Q&A by person
	Track geographic remoteness of person providing Q from people providing A
	Track time delay until Q receives A
	Track number of A provided for each Q
Prediction Markets	Specify events and offer betting rewards in points for using them
	Track market events against actual occurrence
Productivity	Track employee output per project
	Track employee access to Q&A as well as to knowledge objects (KO) within the DB
	Track reuse of A and of knowledge objects/documents
Avoid Tradeoff in ProSocial & Econ Incentives	Allow folks to donate their earned points to causes, projects, or people.
	Allow awarding of tips and "thank you" points
	Allow people to forgo collecting their points
	Recognize most helpful contributors