Designing a Facilitator's Cockpit for an Idea Management System

Marcos Baez
Palo Alto Research Center (PARC)
3333 Coyote Hill Rd.
Palo Alto, CA 94304, USA
marcos.baez@parc.com

Dipartimento di Ingegneria e Scienza dell'Informazione
University of Trento
Via Sommarive, 14 38100 Trento, Italy
baez@disi.unitn.it

Gregorio Convertino
Xerox Research Centre Europe (XRCE)
6 chemin de Maupertuis
38240 Meylan, France
gregorio.convertino@xrce.xerox.com

Palo Alto Research Center (PARC)
3333 Coyote Hill Rd.
Palo Alto, CA 94304, USA
gregorio.convertino@parc.com

CSCW'12, February 11–15, 2012, Seattle, Washington, USA.
ACM 978-1-4503-1051-2/12/02.

Abstract
We present the design of a dashboard for facilitators in Idea Management Systems (IMS). IMS are an emerging class of collaborative software tools aimed at business organizations or local geographic communities. Through these systems users can generate, share, judge, refine, and select ideas as part of a grassroots process. However, a class of users that is lacking adequate support in current IMS are the facilitators. Their role is to help the best ideas to emerge and grow, while balancing the judgments of the crowd with those of the managers or the community leaders. In this paper we point to the unmet needs of these users, describe the design of a system prototype, and the evaluation of a first version of this prototype to test our design.

Keywords
Idea Management, Deliberation, Collective Intelligence

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms
Guides, instructions, author's kit, conference publication

Introduction

After Web 2.0 tools have enabled large crowds of non-expert users to generate, share, and collectively organize knowledge, as in Wikipedia, a new challenge is now being tacked in the growing space of tools for collective intelligence: how to enable ideation and deliberation at the "meso-scale" level of organizations [2] and local geographic communities [4]. Prior research and development around groupware has generated various tools that can support idea generation and deliberation in small groups. In these systems, while the entire group is involved in generating and organizing the ideas relatively little assistance is required from a facilitator. However, when a community or an entire organization is participating in the idea management and deliberation process (i.e., the meso-scale level), a much larger number of ideas are generated, and the selection and judgment can become prohibitively lengthy and time consuming, which requires a lot of effort from the facilitators.

Facilitation at large scale with current technologies
A prominent example is the IMS for Google's project called project10tothe100.com, where thousands of people from around the world submitted about 154,000 submissions and then an army of 3,000 facilitators at Google had to filter this down to 16 top ideas, to still end up 9 months behind schedule [5].

Facilitation in different domains
We view the problem of providing better tools for facilitators as relevant to multiple application domains for IMS: grassroots innovation systems for the employee of an organization to deliberate about innovation internally (e.g., [1]), or systems that allow the customers of a company or enthusiasts to deliberate about the next line of products or services (e.g., MyStarbucksIdea by salesforce.com) or pose problems and help each other in solving them (e.g., Lithium Technologies), and e-government or e-democracy systems for a local community to deliberate about public good.

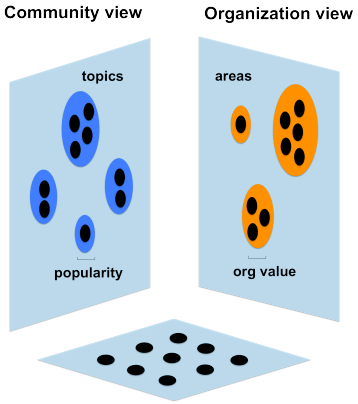
In this paper, we focus on the needs of facilitators in Idea Management Systems (IMS). They are power users, administrators, or managers who help with reviewing, organizing, and selecting the ideas as they are generated. Their role is to facilitate the selection and judgment process around good ideas, in doing so they should help the best ideas to emerge and grow, while balancing the judgments of the crowd with those of the organization's managers or community leaders.

Related Work

The literature and systems in this space provide different level of support for large-scale deliberation and ideation. In the Deliberatorium [5], the space of ideas is reduced at the moment of the idea generation by using an argumentation-based approach. Commercial products (e.g., salesforce.com) provide some automatic mechanism at the moment of generation to reduce duplicates and improper content, and after the idea generation by providing a flagging feature. Spigit (spigit.com) reduces the overload by ensuring ideas reach a certain level of maturity and acceptance, encoded in "graduation stages", before getting the attention of curators. All these approaches strongly rely on the community to filter out redundant or non-interesting ideas. Ultimately, this leaves the facilitators with many of these redundant, ambiguous, contradictory, or non-interesting ideas.

The mIPS system [7] provides some support for sensemaking in allowing users to express and visualize links between ideas (e.g., derived ideas, merged ideas). Other systems (e.g., spigit.com) provide basic topic discovery and navigation to scope ideas. Nonetheless, the support for sensemaking in these systems is quite limited given that the view is restricted to i) what can be derived from the content (while there is a lack of suitable representations for making sense of the entire space of ideas), and to ii) what the users state during the idea generation. However, the current tools are missing the view of the organization (i.e., managers or elected leaders): the areas or groupings of ideas and the criteria that the organization uses for assessing the ideas.

The support for selecting ideas is generally provided by assigning higher values to promising ideas so that these ideas bubble up. Most systems (e.g., ideascale.com, salesforce.com) rely on mere counts of community votes to rank ideas. Spigit follows a more diversified approach. On one hand, it factors in the



Muti-view/ multi-value view of the space of the ideas. At the bottom the traditional view and on top the projection of the space to the community and organization

reputation of the users as her/his vote is assigned. On the other hand, it provides an "idea market" as alternative way for capturing the crowd's assessment of the value of ideas through the market interest. These approaches are interesting alternative ways of gauging the interest of the crowd. However, they do not provide proper support for looking at the ideas based on their value to the organization.

The current scenario calls for proper tools and models for providing better decision support, able of balancing community and organization views and values.

Facilitator's Cockpit: User Interface

We based our user interface on a multi-view / multi-value view of the space of the ideas. These can be analyzed from the point of view of the *crowd* that generates the ideas and the *organization* (managers or leaders) that ultimately selects the ideas. This represents a fundamental change in the way current systems treat ideas, which is mostly crowd-based, i.e., characterization based on categories exposed to the crowd (content) and feedback provided by the crowd (value). We argue that by moving to a multi-view / multi-value system, facilitators will have a better understanding of the value residing in the large pool of ideas, which in turn will promote better deliberations.

The multi-view / multi-value design relies on *topics* (e.g., food, vegetarian) and *popularity* as a way of characterizing and measuring the value of ideas from the crowd perspective. *Areas* of interest (e.g., market expansion, support for minorities) and *organization value* are the counterparts from the organization standpoint. Enabling the multidimensional view requires as well proper interaction, e.g., to associate ideas to areas and topics with proper values. The cockpit empowers the facilitator with some new functions: dynamic scoping, organization, association, feedback and visualization. In addition, using a mixed-initiative approach 0, these new opportunities for interaction are augmented with machine learning functions. These constructs can be seen at work in the following key features:

- Organizing ideas in areas of interest
- Selecting promising ideas
- Dealing with overlapping ideas
- Reflecting organization priorities
- Assigning reviewers and deliberating on the ideas

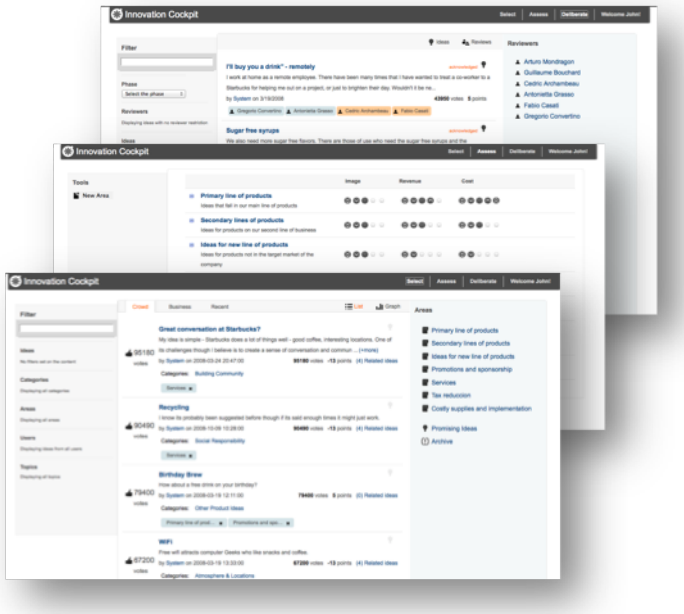


figure 1: Screenshots of the three main sections of the cockpit

Select section. It allows the facilitator to: i) efficiently filter and relate ideas, ii) cluster related ideas, iii) organize the ideas in relation to the areas of interest for the organization, iv) and explore the space using a visual representation based on areas and topics. The user can relate ideas to areas (or archive duplicates) either manually via a drag & drop interaction or by validating recommendations from the system. The system learns from user's action to filter out the noise, relate ideas, suggest areas, discover topics, and (over time) capture the decision model.

Assess section. It allows the facilitator to define the areas of interests for the organization (e.g., ideas on support for minorities), and to reflect its priorities by providing a relative assessment of areas on the basis of evaluation criteria relevant to the organization (e.g., revenue).

Deliberate section. It allows the facilitator to assign reviewers to ideas. As the reviews are completed the facilitator is provided with an idea profile that aggregates the *idea in context* with related ideas, reviews, and a *side-by-side* summary of the judgments from both the crowd and the organization. The system recommends relevant reviewers for each idea and learns from the facilitator's feedback.

In the interface design of the cockpit, the above features are packaged in three main sections: *Select*, *Assess* and *Deliberate*. This organization comes from our understanding of the innovation process and a preliminary evaluation of a mockup prototype. Figure 1 illustrates the interface of our current prototype.

System Architecture

Our platform relies on a service-oriented architecture composed of two stacks of modules and interfacing with a *third party IMS*. Figure 2 shows on the left a third party IMS providing services for the community and collecting information with their own incentives and interaction models. Adapters implement the communication logic with the third party IMS. Then, the intermediate components asynchronously replicate the IMS dataset, augment the model with information about topics and put the intelligence in place for the mixed initiative. On the right, the core module and supporting services build on the augmented model and expose the facilitation services.

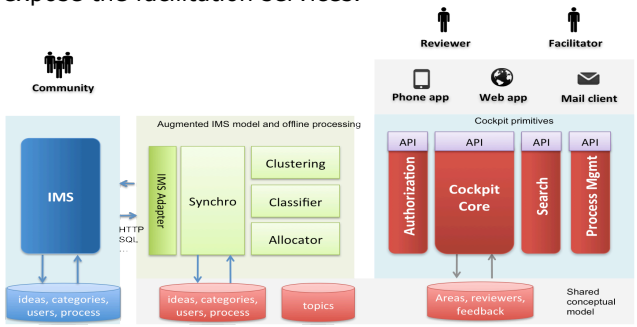


figure 2: Software Architecture of the Facilitator's Cockpit.

Prototype Evaluation and Future Work

As part of our iterative design process, we first designed and then evaluated a low fidelity prototype with eight users that had roles representative of those of the facilitators. Based on the feedback from this first iteration we have developed our current interactive prototype described in this paper and which we are evaluating as part of our second iteration. The evaluation of the first prototype has shown that the multi-view / multi-value design appeared useful and the overall approach could help in reducing the overload and improving the decisions. An outcome of the evaluation was the replacement of the initial feature of voting on areas with a relative assessment [6] feature in the current prototype.

Citations

[1] Bailey B.P. and Horwitz H. (2010): What's *Your* Idea? A Case Study of a Grassroots Innovation Pipeline within a Large Software Company. *CHI 2010*.

[2] Convertino, G.; Grasso, A.; Millen, D.R.; De Michelis, G.; Chi, E. H. (2010) *Group 2010* Workshop.

[3] Helander M., Lawrence R., Liu Y., Perlich C., Reddy C., Rosset S. (2007): Looking for Great Ideas: Analyzing the Innovation Jam. In proc. *WebKDD 2007*.

[4] Garcia, A.C.B, Vivacqua, A.S., Tavares, T.C. mESA: a Model for Collective Decision Making. *CSCW 2010* Workshop on Collective Intelligence In Organizations: Toward a Research Agenda.

[5] Klein, M. (2010). Using Metrics to Enable Large-Scale Deliberation. In [2].

[6] Pirolli, P., Good, L., Heiser, J., Shrager, J., & Hutchins, S. (2005). UIR technical report. Palo Alto, CA: Palo Alto Research Center Incorporated

[7] Vivacqua A.S., Expedito C., Galuzzo F., Borges, M.R.S., da Silva, S.T.F. (2010), Moving from Ideas to Proposals. *CSCW10* Workshop on Collective Intelligence In Organizations: Toward a Research Agenda.

Horvitz E. (1999) Principles of Mixed-Initiative User Interfaces. Proceedings of *CHI '99*.