DRIVING INNOVATION AND KNOWLEDGE MANAGEMENT USING CROWDSOURCING

Teaching Case

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Abstract

Crowdsourcing is emerging as a critical source of information and knowledge in contemporary enterprises. Web 2.0-like tools are being developed to help enterprises perform crowdsourcing. Further, in an era of global competition and where “CIO” is increasingly being used to refer to “Chief Innovation Officer,” facilitating enterprise innovation is becoming more and more important. This paper presents a case that is designed to illustrate the use of a Web 2.0-like tool to gather data from an enterprise’s crowd to facilitate generating innovative ideas and help manage innovation knowledge. The case presents the basic system design and provides screens to illustrate its use. The case also examines how two firms have used the tool in the banking and consulting industries. Finally, the case examines some potential challenges associated with systems of this type.

Keywords: Innovation, crowdsourcing, knowledge management, Web 2.0

1 Please contact the author for a teaching note.
Introduction

Bill Daniels was Executive Director of Pasadena Management Consulting (PMC). PMC’s success depended on being able to generate innovative and knowledgeable solutions from its consultants for its clients. However, geographic dispersion of its consultants and their consultants’ individual independence was limiting the ability of the company to draw on the broad base of their consultants’ ideas and knowledge.

However, Bill thought that there were some good solutions available for innovation and knowledge management that could help PMC bring together the innovation capacity implicitly held within the firm. Bill had been following development of “Web 2.0” and so-called crowdsourcing and thought that those concepts might be just what PMC needed to generate the innovation necessary to continue to compete and be a true “thought leader” in the industry.

In particular, Bill had heard of Accenture’s “Grapevine” (also known as “Accenture Collaborative Innovation Solution”) product and thought that it might fit PMC’s specific needs. Grapevine reminded him of many offerings on the Internet that had large bases of users. Grapevine seemed to leverage the ability to do “crowdsourcing” in an Internet-like environment. As Bill saw it, Grapevine seemed to draw users in with its easy-to-use format. Grapevine started with a posted idea. Users would comment on that idea, resulting in additional ideas. Users also would rate ideas resulting in the rankings of ideas and users for their contributions. Gradually, a tree of ideas, a “Grapevine” would be drawn by the community of users.

That approach was intuitive and seemed to make a lot of sense to Daniels. As a result, Daniels had created a small committee to analyze how well Grapevine would “fit” at PMC and he was waiting for their report before pushing ahead with the idea.

Pasadena Management Consulting

Pasadena Management Consulting (PMC) was a young consulting company that specialized in generating creative solutions for technology companies. PMC prided itself on being able to be a thought leader for each of its clients. Each engagement was aimed at relatively unique needs of the clients. Engagements typically used small teams of consultants, with most of the engagements involving a single consultant for almost all of the work.

Engagements were staffed with leading consultants, typically with a combination of academic and real-world experience. PMC was more of a confederation of independent consultants than an integrated company. A typical consultant at PMC had either a Ph. D. or a Master’s degree in business, statistics or computer science with deep expertise in technology and/or process consulting, or consultants were former top business executives. Many consultants were authors of books and technical papers demonstrating their expertise.

Innovation and knowledge management at PMC had only received limited attention over its young life. Instead, there had been greater focus on growth and revenues, as they “grew the business.” Further, since consultants largely worked alone on engagements, there had been limited interest in facilitating collaboration. However, increasingly PMC was interested in larger engagements that used more teams than independent consultants, because such engagements generally were more profitable. As a result, there was increasing interest in facilitating PMC’s continued evolution to include increased collaboration.

Web 2.0 and Crowdsourcing

Daniels had been intrigued by Web 2.0 developments and crowdsourcing in particular. Web 2.0 referred to a range of developments, typically thought to include blogs, social networking, video sharing sites,
virtual reality, wikis, and included specific products and platforms such as Twitter, Facebook and Flickr. Web 2.0 allowed users to do more than just retrieve information. With web 2.0, individual users become major contributors of information available on the web. As a result, Web 2.0 environments typically engender substantial communication and collaboration.

Crowdsourcing attempts to tap into some population, such as the employees of a company, in order to gather ideas, suggestions, knowledge, etc. Crowdsourcing is an approach that can be used to capture content derived from a range of potential contributors, based on the so-called “wisdom of the crowds” (e.g., Surowiecki 2004). Crowdsourcing is emerging as one of the key approaches to generating that information in a Web 2.0 environment.

One perspective is to characterize different kinds of crowdsourcing as occurring across both time and location (Erickson 2011) as in figure 1. Crowdsourcing at the same time and same place is “audience centric.” Audience centric crowdsourcing is able to leverage audience involvement and participation to generate additional involvement, interest and knowledge.

Event centric crowdsourcing occurs at the same time but at different locations, and is exemplified by so-called “innovation jams” (e.g., Bjelland and Wood 2008). Innovation jams typically take place on line, and can include massive concurrent collaboration. Innovation jams are designed to enable and spark change and innovation, by harnessing the creativity of a virtual group.

![Crowdsourcing Typology](image)

At the intersection of “same location but different time” is geocentric crowdsourcing, which includes a number of emerging sites and apps. Foursquare.com is an example of a web site or app that allows users to “find great places near you.” Users can contribute and comment at any time about particular places. The mobile app version of Foursquare.com allows users to find others that they may know that are “near” them. Similarly, Cyclopath allows users to contribute cycling paths in particular areas at any point in time.
Finally, at the intersection of different location and time are classic global crowdsourcing sites such as Wikipedia. Wikipedia is a well-known source of information and knowledge about a wide range of topics. Preparers generate the material for Wikipedia at different times and different locations. As another example, the so-called ESP Game matches two humans who each evaluate a situation, image, or some other issue and then provide a label or set of labels. The labels are then compared to determine the similarity of the labels. The participants do not need to be at the same location or performing the task at the same time.

**Accenture’s Grapevine**

Grapevine was developed to facilitate on-line collaborative brainstorming to foster innovation in a classic global crowdsourcing environment. The tool provides the ability to facilitate the process of generating, managing, filtering and prioritizing different ideas at different times and places. In addition, Grapevine serves as a tool that can help problem-solving, and decision making within groups. Grapevine also provides the ability to provide feedback to contributors from other users. Since Grapevine is a brainstorming tool, the ideas that are generated as part of the brainstorming process may be more interesting than the original ideas that started the discussion. Thus, it is important that the Grapevine facilitates a broad range of users providing ideas.

Grapevine uses a wiki notion of shared composition (Bechtell and Chewning (2008)). It starts the user with the idea of immediate concern (e.g., the posted idea, business challenge, etc.) and asks users to provide alternatives to the idea or to “like” the idea being presented. Accordingly, the ideas generated using Grapevine may either help converge on potential solutions or diverge to a range of related problems and solutions, depending on the ways the crowd pushes the analysis.

Ultimately, Grapevine asks the users to evaluate the ideas that are presented, counting on the wisdom of the crowd to rate the best ideas higher than other ideas presented. In so doing, Grapevine takes an idea from the “seed” to growing grapes on the “vine,” to ultimately creating a “wine” from the grapes.

**System Overview**

In a pair of patent applications Accenture laid out some of the system features, using a “TAB” approach, where the tabs progressed across: “Welcome,” “Seeds,” “Vines,” and “Wine” (see figure 2) (Bechtel et al. (2009a, 2009b)).

A welcome tab would lie between the system and the user. At the “Welcome” tab the system was planned to greet the user with a summary of the basic overall system functionality:

- **Read:** the collected thinking of your entire community
- **Write:** your own contributions to leave your mark and inspire others
- **Rate:** the community’s ideas to raise the best from the rest

At the “Seeds” tab there would be a number of different topics and questions in play, e.g., sample topics suggested initially might include:

- **Improve the Grapevine:** How can the Grapevine be improved?
- **Listen to your Boss:** What would you like to see in the “Listen to your Boss” series?
- **Recognition:** How would you like to be recognized for your good work? Do you have any new ideas for improving recognition?

At the “Vine” tab there would be drill down on a particular “Seed” resulting in a decision tree-like graphic with multiple progressive nodes of different types. Nodes are “grapes” on the vine and those grapes can be of varying degrees of “ripeness” or readiness to be turned into wine.

Nodes could be “Not Viewed,” “Viewed,” “Rated,” “Contributed,” and “Selected.” Attached to each node were comments and those comments included information such as who added the node, when they added it, who liked it, and any tags that were used to describe the node that could be used for search or other related concerns.
At the “Wine” tab, information would be provided in a summarized form. Alternatives could be ranked by different ratings from users that have been gathered. If an idea was at the “wine” tab then that meant that the idea was in a position to be evaluated.

Like many Internet-based systems, Grapevine’s design suggests that it would depend on users to provide feedback to administrators about contributions for self-governance of sorts. For example, users would be able to flag different contributions if the contribution was deemed offensive, confidential, duplicate or redundant or there are other concerns.

**Touted Advantages of Grapevine Use at Accenture**

Grapevine was touted by Accenture as having a number of benefits including the following. First, it would allow “... an organization to redistribute work from the overloaded few to the eager and willing many.” Second, managers could ensure that the focused seed initiating the analysis is aimed real business concerns. Third, the approach is “truly collaborative” in that ideas would be generated based on other ideas as the vine is grown. Fourth, the “community-driven idea evaluation system separates the best contributions ... (and) ensures that decision makers aren’t required to read ... ‘time-wasting’ content.” Finally, Grapevine is designed to “thrive at scale ...,” allowing a large network of people to participate in the idea generation. As a result, the “crowd” from even large organizations could be engaged by using Grapevine.

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3 These benefits were listed by Accenture Technology Labs, “Collaborative Innovation Solution,” Benefits.
**Example Use of the Grapevine System**

Daniels and the committee were interested in seeing the system in action. As part of the demonstration, there were a number of sample screens to show operation of the system.

Grapevine operates as a vehicle to capture ideas and extensions to ideas. The process is initiated with a question. Then as contributors comment, Grapevine constructs trees with contributions starting with a purple root, and additional comments being added as branches. Information on the branches goes through a life cycle (Figure 3).

In figure 3, the seed comment notes “What about scoring ratings based on level of expertise? Is there a way to separate “expert” opinions from the rest of the opinions?” Based on that original seed a number of other participants have performed different operations, such as viewing, rating and contributing additional comments.

![Figure 3. Grapevine](image)

New topics are proposed, typically through asking a question. As users add incremental ideas, new branches are added to the trees. If no one views the recommendations, then the circles at the end of the branches stay white. If someone views a recommendation beyond the original root idea, the circle

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4 http://www.accenture.com/microsites/CollaborativeInnovationSolution/Pages/home.aspx. Last accessed May 1, 2013. Each figure has been re-drawn by the author based on the original screen shots provided on that site. Some information has been added to facilitate viewing. Original figures are available on request from the author.
becomes light green. If someone rates the recommendation, the circle becomes “middle” green. If the recommendation is selected for potential implementation or addition to the idea, then it is colored orange. A user could get more or less tree detail by toggling the switch on the left side of the screen that worked a lot like similar toggles on maps, going in or out for greater or lesser detail.

Grapevine uses the “Wisdom of the Crowd” in order to generate, facilitate and expand on ideas. Anyone that has an account can contribute ideas or comments on ideas. As the crowd analyzes ideas, the system keeps track of whether or not the ideas are given a positive or negative rating (figure 4). Graphically, the numbers of positive and negative ratings of an idea are captured, respectively, as “thumbs up” and “thumbs down.” Grapevine uses the number of positive and negative assessments as part of rating the different ideas. Ultimately, the number of positive assessments is used to rank the “quality” of the ideas. For example, in figure 4, a listing of ideas by quality, the first idea that is labeled “anonymous submissions” has 6 votes up and 1 vote down, with 3 viewers. The second idea “Spellcheck” has 5 votes up and 0 votes down, with 3 viewers. Information about the ideas can be downloaded so that participants can examine the ideas in more detail.

![Figure 4. Ideas by Quality Rating](image)

Grapevine also keeps information about the contributors and makes that information available in a text (figure 5) and a graphic format (figure 6). Textual information included information about the contribution, who the contributor was, when the contribution was made, a quality assessment score of the contribution and the number of comments that the contributor had made.
In addition, to the information in figure 5, detailed information about the ideas listed is available. For example, for the idea “Avoid Travel Entirely” by Todd ..., 11/12/2011, two of the side comments, not listed in the above screen are “Less travel is greener, smarter, more cost effective ...” and “Use Tele-presence from an Accenture office ....”
In the graphic version individual participants in Grapevine are ranked by a combination of their contributions (green), ratings (blue) and outcomes (red). Putting the mouse cursor on the bar of a particular individual allows the user to see the numeric versions of the information contained in the diagrams. For example, in figure 6, “Brian” was ranked 5th in contributions, 2nd as a “top rater” and 17th as to outcomes.

**Grapevine at Wells Fargo Bank**

PMC was also interested in knowing if other firms had used Grapevine and what their experience had been. The most well-known implementation had been at Wells Fargo Bank.

A predecessor approach to Grapevine and an early instantiation of Grapevine had been implemented at Wells Fargo Bank (Gottsman 2007, Hulett 2009). In the first project, product and process issues were explored resulting in 50 ideas (“Grapes”). Selected ideas were then corroborated analytically and then selected as planning and use initiatives. This first application was done using an email format. Unfortunately, as noted by Gottsman (2007), using email did not scale up effectively. Ideas would be lost, people would be missed, and there was concern over who would rate all of the ideas in that format. As a result, there needed to be a tool specifically designed to address the innovation setting.

In a second follow-on project, innovations in Wells Fargo customer loyalty programs were analyzed. However, in this application, Grapevine in its decision tree format was implemented. Ultimately over 250 participants from 90 different job titles and 21 states contributed ideas on seven different “seed” topics. As reported by Gottsman (2007), this application of Grapevine allowed generation of a large number of diverse ideas that could be evaluated and prioritized, into a short list of actionable ideas. Further, the Grapevine application apparently engaged employees, resulting in higher quality ideas than a classic suggestion box, and reducing the costs of generating those ideas.

**Grapevine Use at Accenture**

Accenture continued developing Grapevine beyond its original design and implementation. Recently, Accenture has reported that Grapevine can accommodate up to 50,000 participants. Further, Accenture (2011, p. 8) suggests that “... the more people that reflect together, the better the performance of the community and the results obtained.”

As the saying goes at many technology companies, “you have to eat your own dog food.” Accenture was no different. As a result, Accenture used Grapevine internally. In particular, reportedly, in Spain during 2011, Accenture had analyzed 31 seeds, produced 1893 grapes, had 32,788 accesses to Grapevine, had 8,348 assessments made from 4,029 registered users (Accenture 2011).

Two specific projects have been delineated for more detailed discussion based on Accenture’s use (Accenture 2011). First, Accenture examined the issue of finding innovative ways to reduce paper consumption. This seed produced 255 grapes, with 12,666 accesses, 892 favorable assessments and 555 unfavorable assessments. The authors of this first seed were rewarded with a trip to the Museum of Human Evolution and the Atapuerca Site, in Burgos, Spain. Second, Accenture examined “experiential marketing” and its potential use at Accenture. Experiential marketing attempts to generate innovative client experiences. This second seed produced 51 grapes and 1,764 accesses.

In order to make sure that employees knew how to use Grapevine, education about how to use it has been integrated into multiple training programs. Many users were first added to Grapevine as part of training activities when they first joined the firm.

**Committee Analysis of Grapevine**

As the committee analyzed the use of Grapevine for PMC there were some potential emerging issues that they felt they should consider that might affect Grapevine’s use and success at PMC.

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**Same problem in multiple seeds**

Within PMC, different functional areas, projects, etc. appeared to emanate ideas from their own perspective. As a result, potentially the same problem could appear as emanating from different ideas. For example, at PMC, cloud computing was emerging as an innovative solution for multiple groups and projects. However, although the comments from the different functional areas and projects might be similar and gain from being “connected” it did not appear that Grapevine provided a vehicle for linking them. Different ideas stood alone. With Grapevine they would be grouped with the original seed that generated them. As a result, PMC was concerned with being able to somehow find these similar ideas and string together the different sets of emerging ideas in order to benefit from different perspectives on the same ideas.

**Library of Ideas**

Since Grapevine appeared to generate a large number of ideas, Pasadena Management Consulting also was analyzing the potential to generate libraries of ideas. Their thought was that text mining might be able to discover knowledge inherent in a Grapevine. This approach could lead to reuse of different ideas in different settings.

**Determining relevance**

In crowdsourcing the relevance is in the eye of the beholder. A user in one context could see an idea connection, while a user in a different context might have an entirely different perspective. As a result, what was a relevant link to one user might not be a relevant link to another. Thus, there was concern that if they used Grapevine that, in some cases, idea links would not “make sense” to all users.

**Focus or Diffuse**

One member of the committee was interested in a specific issue: Does Grapevine help “focus” the discussion on the particular issue of concern or does it serve to “diffuse” the discussion? On the one hand it was clear that there was an initial seed and that the comments emanating from the seed were based on that seed. However, on the other hand, it appeared that one user comment might lead to another and pretty soon there would concern as to how related the branch issue were to the original seed.

**Grapevine in Time and Space**

Although it was expected that Grapevine would be used by participants at different times and places, it also was expected that Grapevine could be used by participants at the same time or at different times and at the same place or different places. However, it was not clear if Grapevine use at the same time and/or same place would provide the same or additional capabilities. For example, could they use Grapevine as part of an “innovation jam?” Would Grapevine likely generate additional ideas at an innovation jam, with multiple simultaneous users.

**Other Uses of Grapevine**

Pasadena Management Consulting was analyzing the types of problems that Grapevine could be used to address. They had seen how Wells Fargo and Accenture had used the tool and were trying to anticipate additional and emerging uses: The more uses that they could generate for the software, the more likely that they could justify PMC’s investment in Grapevine. As a result, the committee had decided that a portion of the report should focus on alternative uses.
How would PMC measure return on investment?

Finally, PMC’s Chief Financial Officer was concerned with how PMC was going to measure the return on their investment. What factors would need to be considered from both the cost and benefit sides. How would they know if an innovation was attributable to the use of Grapevine? What costs should they trace?

Going Forward

The committee had now reviewed the overall system design, seen sample screens, heard about its use at Wells Fargo bank, and its use at Accenture, with detailed information about multiple projects.

As part of their report, the committee would need to identify a number of potential issues that needed to be addressed. However, they were also concerned if crowdsourcing would work the same when they brought it from the Internet to inside a company. Accenture’s and Wells Fargo’s implementations had given them some insights, but the committee was trying to anticipate how well Grapevine would work in Pasadena Management Consulting. Would Grapevine fit? What would make it work? What might stand in the way of it working? Daniels was interested and it was up to the committee to identify potential strengths and limitations of Grapevine.

Conclusion

Pasadena Management Consulting (PMC) was interested in innovation and knowledge management. PMC’s Director had heard about Web 2.0 and crowdsourcing, and Accenture’s “Grapevine” appeared to integrate the two concepts to support a process that seemed to facilitate collaboration for innovation and knowledge management. The committee formed to analyze the potential use at PMC had examined the original patent application, screens illustrating its use and use of the system at Wells Fargo and Accenture. Now the committee needed to put together their recommendations to Daniels.

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References


