

Researchreport

Innovative Tools: Idea Markets

USING THE WISDOM OF THE CROWDS FOR GENERATING AND EVALUATING
NEW PRODUCT IDEAS.

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Introduction

"The wisdom of the crowds" is the title of a book written by James Surowiecki about the aggregation of information in groups, resulting in decisions that are often better than those by any single member of the group. The author builds upon research in the area of Internet-based virtual stock markets of Forsythe/Nelson/Neumann/Wright (1992) and Spann/Skiera (2003) and argues that such markets are an innovative approach that can be used to predict future market developments and events, e.g., of political as well as business and economic interest. Such markets are nowadays used by companies such as Microsoft, Google, Hewlett Packard and Ely Lilly for predicting, among others, the sales of products. Yet, so far there are no reports about applications of virtual stock markets in the financial service industry. This is surprising as "real-world" stock markets are central for financial institutions.

Basic idea of virtual stock markets

The basic idea of such a virtual stock market is

to bring a group of participants together via the Internet and let them trade shares of virtual stocks. These stocks represent a bet on the outcome of future market situations. Their value depends on the realization of these market situations, thus making the stock prices predictors of these market situations. Participants in the virtual stock market use their (individual) expectations of the outcome to derive an (individual) expectation of the value of the related share of virtual stock. Accordingly, they compare their expected cash dividend with the market's aggregate expectation as a means to trade their individual expectations. For example, if a participant anticipates that an innovative pay-as-you-drive insurance insurance product will attract 50,000 new customers, the cash dividend of the related share of virtual stock would be \$500, and every 100 customers would correspond to \$1. In the case of a current stock price of \$95 (\$105)—that is, an expectation of 95 (105) points—the stock is undervalued (overvalued), according to the estimates of this participant, who therefore could try to attain an expected profit of \$5 by

buying (selling). If the potential gains in the virtual portfolio value create a sufficiently high incentive for participants to perform well in the virtual stock market, it becomes their best strategy to engage in transactions on the basis of their best individual expectations. Hence, virtual stock markets are a method to organize Internet-based interactions with experts, consumers, and other persons in order to elicit their information concerning future events.

Given the lack of recognition of virtual stock markets in the financial service industry, we show in this article how to use idea markets, a special form of virtual stock markets, to generate and evaluate new product ideas. Such new product ideas could cover a wide range of innovative product ideas such as pay-as-you-drive insurances, the use of corporate blogs, "peer-to-peer mortgage lending", new electronic payment systems, plastic surgery loans or the use of new channels to target new customer groups. The objective of idea markets is to create a virtual market where all participants can suggest new product ideas and collectively evaluate those ideas through a market mechanism. Idea markets use idea stocks to represent new product ideas, let participants trade the stocks on a virtual market place, and use the efficiency of markets and the resulting stock prices as indicators for the possible success of the different new product ideas. The description of an idea stock can contain textual descriptions and multimedia enhanced content.

The basic principle behind using the market

mechanism for idea generation is to exploit the power of markets to efficiently evaluate a large number of stocks. Idea markets are very likely a good forecasting instrument because they (i) allow participants' self-selection according to their relevant information, (ii) entail appropriate reward mechanisms that provide participants with an incentive to reveal their knowledge, (iii) preserve participants' anonymity which reduces their fear of reprisal for revealing unpopular expectations, (iv) present a natural mechanism for active group interplay, and (v) provide a natural aggregation mechanism.

Description of Idea Market Application

We implemented our idea market in a large German technological company that operates in more than 100 countries. Its revenues totaled more than 2 billion US\$ in 2006, 90% of which yielded from high technological B2B products and with 80% outside the home country. The parent company has various subsidiaries worldwide and holds a very diverse product portfolio.

The idea market was designed based on extensive discussions with responsible executives and was carried on with their constant contact and approval. Its aim was to identify (i) new technologies for the company in 2016 (i.e. technological forecasting), (ii) new product ideas for a specific product category, (iii) innovative product and business ideas for the company as well as (iv) increase the involvement of their employees in new product development. Therefore, we set up three different categories of stocks: For stocks of category a, the price of

an idea stock reflected the estimated percentage of revenues influenced by the respective technology in ten years. For stocks in category b, the price of an idea stock depended on the estimated number of units that will be sold of such a product in ten years. The last category c was a miscellaneous category for product and business ideas of any kind, of which the ten best ideas were worth 100\$ and 0\$ otherwise. The Idea Market lasted 36 days and was open to all employees. The web application provided a look-and-feel that was close to the one of real financial markets. The user interfaces were in German and English, and were adapted to corporate design conventions to ease the training for novice users. Since the company did not have any experience with such an Idea Market, we provided our own software which was applied in several projects before. In addition, a discussion board was provided. The best ten traders received prizes worth 3,000 € altogether, ranging from 100 € to 1,500 €. The first prize was handed out to the winner during a major corporate event on innovation. The Idea Market used a virtual currency. The participation was free of charge and participants could trade with the virtual currency, which could not be exchanged for a realworld currency. After the registration on the intranet, each trader was endowed with 10,000 virtual cash (for the ease of explanation, we use '\$' for the virtual currency).

Screening of New Product Ideas

To avoid too many product ideas with a rather moderate quality on the Idea Market, we used the screening process described in Figure 1.

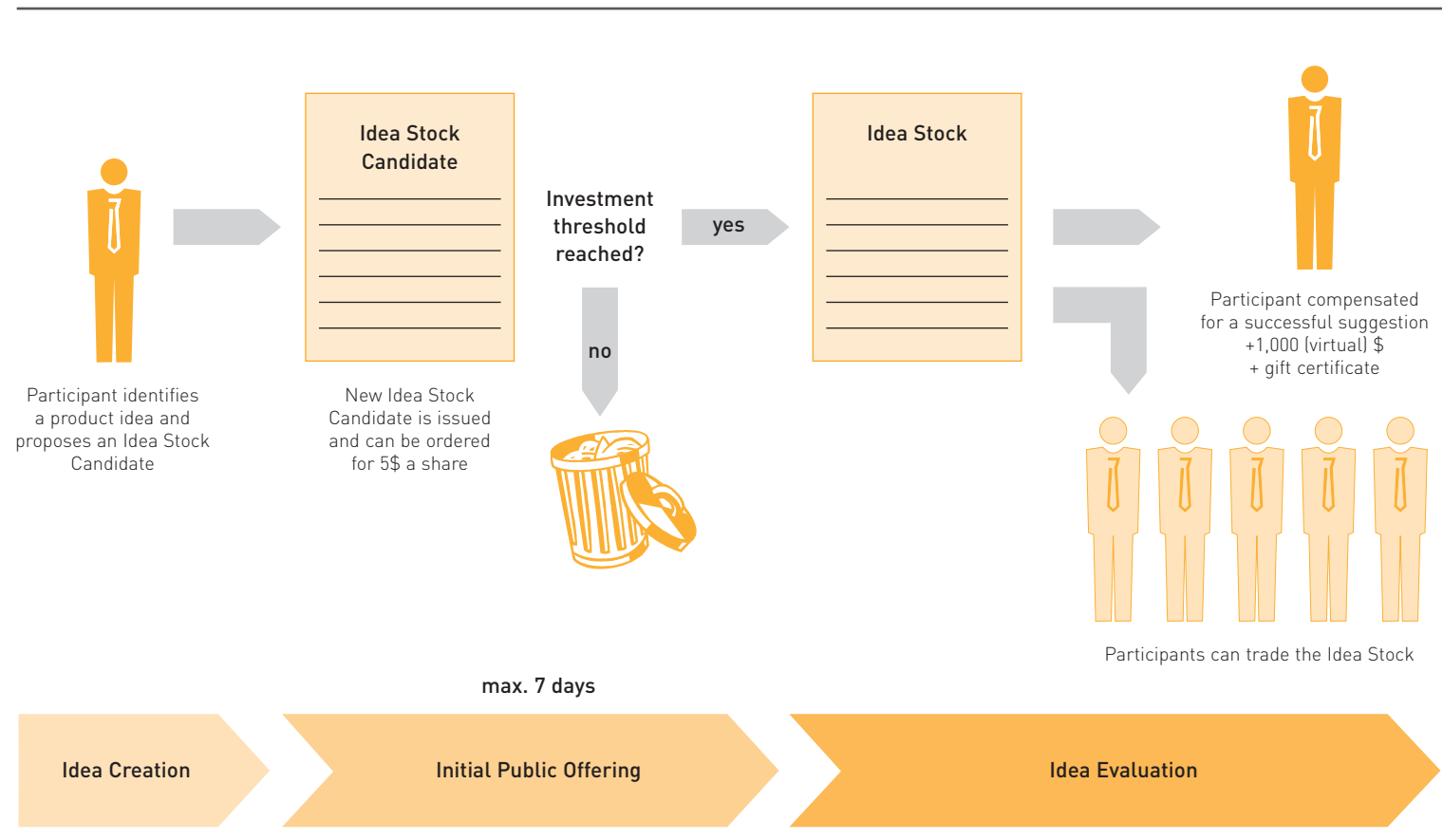


Figure 1: Screening Process for Floating New Product Ideas

Every participant was allowed to suggest a new product idea. The rules for idea suggestions were that the product idea had to be "new to the Idea Market" (first come, first serve principle) and "new to the company", meaning not developed or sold as a product yet. No other formal restrictions were put on the way as to how the participants had to describe their new product idea. They could also enter external

links, quote other publications or upload respective images or sketches. The participants were asked to submit their ideas both in English and German, if not they were translated into the other language. Each new product idea was formed to an idea stock candidate and was offered to the participants of the Idea Market by a uniform price IPO mechanism. During the next seven days, the shares of idea

stock candidates could be ordered for 5\$ of virtual currency each. In case the new product idea reached the threshold quantity, it became an idea stock and was traded in the market; otherwise it was dropped from the list of idea stock candidates, but was still visible on the website. To lessen the possibility of collusion and to limit the influence of single participants on the IPO, each trader could only buy for a

maximum of 4,000\$, equivalent to 800 shares of each idea stock candidate.

Results of the Application

642 participants registered for the Idea Market and 576 logged in at least once. 36,435 trades were made. 397 participants executed at least one trade or submitted at least one product idea. An overwhelming majority of 86% of the registered participants - especially employees with access to a PC with Internet connection - was from the company's home country (Germany); the second largest group was from the United States (9%). The remaining 5% came from 17 different countries, which indicates the ability of the Idea Market to draw interest among a diverse group of participants. The majority of the registrations occurred on the 7th day; shortly after an email announcement was sent out. On average, the Idea Market attracted on working days a remarkably high number of 157 participants a day. Figure 2 shows that this number remained fairly constant during the five weeks that the Idea Market was running. Such a continuously high transparency and interest among participants is a good indicator of a successful virtual stock market application. During the 24 days of the idea submission period, 128 traders (33% of all active traders) suggested 252 unique product ideas. The maximum number of ideas suggested by a single trader was eleven of which three made the IPO.

The participants and the senior management perceived the Idea Market to be very useful for the company. The senior management con-

firmed even more strongly that the Idea Market should be conducted again and 84% of all senior managers would also recommend the use of Idea Markets to other companies. In addition to this, our discussions with executives of the company revealed that the Idea Market involved more employees of the company in a new product development process than any other method in the past. An overwhelming majority of 89% participants stated that they would participate again at the Idea Market. 57.6% of participants testified that the Idea Market increased their interest for new product development. Several product ideas are currently under consideration for further ascertainment. In addition, the initiating and responsible manager of the company was promoted after the end of the stock market and the Idea

Market project team recently won a corporate award. That award especially highlighted the unique feature of the Idea Market to integrate employees from all over the world. A similar award was not rewarded for any other new product development method before. Apart from these measurable results, the company might benefit in the longterm by the increased interest of their employees in new product development.

Conclusions

Our application shows that idea markets are a new and capable tool for supporting the development of new product ideas. They are building upon the idea of using the "wisdom of the crowds" and the use of intelligent platforms that allow for collaboration and sharing

between users. Markets have much more to offer for the financial service industry than is currently recognized and we hope that financial service institutions start to benefit from those markets much the same way as our high-tech B2B company did. It might also be a tool that stronger involves banking and insurance customers in the new product development, an idea that describes the success of many Web 2.0 applications. We feel that idea markets are a tool to better deal with the ongoing challenge of creating innovative and appropriate financing and banking solutions.

References

Fama, E.F:

Efficient Capital Markets: A Review of Theory and Empirical Work. In: Journal of Finance 25 (1970), pp. 383-417.

Forsythe, R.; Nelson, F.; Neumann, G.R.; Wright, J.:

Anatomy of an Experimental Political Stock Market. In: American Economic Review 82 (1992), pp.1142-1161.

Hayek, F.A.v.:

The Use of Knowledge in Society. In: American Economic Review 35 (1945), pp. 519-530.

Spann, M.; Skiera, B.:

Internet-Based Virtual Stock Markets for Business Forecasting. In: Management Science 49 (2003), pp. 1310-1326.

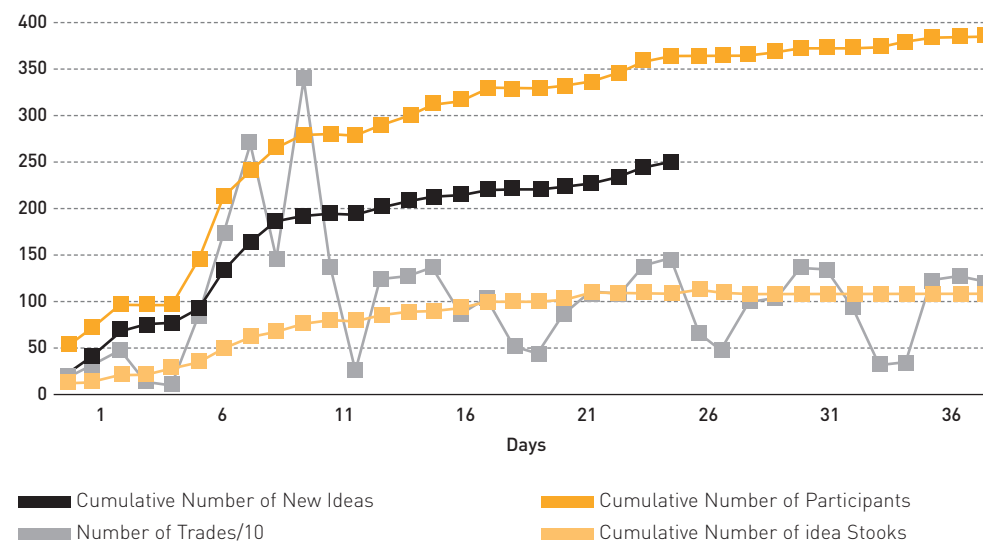


Figure 2: Overview over Activities on the Idea Market