

Innovation Contests

An IT-Based Tool for Innovation Management

DOI 10.1007/s12599-011-0147-7

The Authors

Dipl.-Kfm. Jörg B.A. Haller
 Dr. Angelika C. Bullinger
 Prof. Dr. Kathrin M. Möslin (✉)
 Institute of Information Systems
 University of Erlangen-Nuremberg
 Lange Gasse 20
 90403 Nuremberg
 Germany
joerg.haller@wiso.uni-erlangen.de
angelika.bullinger@wiso.uni-erlangen.de
kathrin.moeslein@wiso.uni-erlangen.de

Received: 2010-07-09
 Accepted: 2011-01-15
 Accepted after one revision by
 Prof. Dr. Sinz.
 Published online: 2011-02-24

This article is also available in German in print and via <http://www.wirtschaftsinformatik.de>: Haller JBA, Bullinger AC, Möslin KM (2011) Innovationswettbewerbe. Ein IT-gestütztes Instrument des Innovationsmanagements. WIRTSCHAFTSINFORMATIK. doi: [10.1007/s11576-011-0262-6](https://doi.org/10.1007/s11576-011-0262-6).

© The Author(s) 2011. This article is published with open access at Springerlink.com

1 Innovation contests – Tapping Into the Wisdom of the Crowd

2,232, 4,298, 26,617, 8,582... these are key figures of a recent IT-based innovation contest conducted by Bombardier (<http://yourail-design.bombardier.com>). This initiative aimed at identifying “new and innovative interior designs for trains”. The numbers mentioned at the beginning of this article hence spell out in the following manner: During a ten weeks period, 2,232 persons participated in the innovation contest by submitting

4,298 designs, immense 26,617 ratings, and 8,582 comments on competing submissions.

Thus, by an IT-based innovation management tool, even a B2B company like Bombardier can get in touch with end users and other outside experts (e.g., designers). Bombardier took advantage of the worldwide innovative potential (by calling for submissions), to gather first-hand customer insights (by evaluation of submissions, ratings, and comments), and, even more, it spread the word about the company as participants voluntarily acted as word of mouth marketers.

While an organizational innovation to Bombardier, the principle of innovation contests is tried and tested. Early examples date back more than 450 years, when the king of Spain initiated the *Spanish Longitude Prize* to discover a method to find longitude at sea (Masters and Delbecq 2008). In the course of time, innovation contests have first been applied by public institutions which used their reputation and financial power to stimulate participation. Since the beginning of the 19th century, also industry has organized innovation contests. One early example of this time is the *Billiard Ball Prize*, which granted \$ 10,000 for a suitable substitute for ivory to make billiard balls (Masters and Delbecq 2008).

Nowadays, with the global availability of broadband access to the World Wide Web, IT-based innovation contests are used for a broad range of tasks – from designing wristbands for watches (e.g., Swarovski) to solving complex scientific problems (e.g., XPrize foundation). Innovation contests allow tapping into the wisdom of the crowd (Surowiecki 2004) and integrating interested customers, end users, partners, and other outside innovators (Neyer et al. 2009) into the innovative activities of an organization. This open innovation approach follows the assumption of Bill Joy, co-founder of Sun Microsystems, that “No matter who you are, most of the smartest people work for someone else.” Integration of interested innovators allows access to both, participants’ tacit knowledge concerning needs

(need information) – and their expertise with problem solving (solution information). Advances in innovation technology impact the opportunities to globally tap into this knowledge, making innovation contests a powerful tool for a variety of goals.

2 Innovation Contests and Their Design Elements

An innovation contest is defined as a/an (IT-based) competition of innovators who use their skills, experience, and creativity to provide a solution for a particular contest challenge defined by an organizer (Bullinger et al. 2010).

Innovation contests are also known under terms like idea(s) or design competition (Leimeister et al. 2009; Piller and Walcher 2006). The term “innovation contest”, however, is used as an umbrella term for these sub-categories, illustrating that an innovation contest holds the potential to cover the entire innovation process from idea generation to selection and implementation.

Subsuming existing literature and practice concerning innovation contests, some generalizations concerning their design elements can be made: An organizer publishes an open *challenge/problem* on an *IT-based platform*, addressing a more or less specified *target group*. Participants then *elaborate* and submit their contributions during a defined *runtime*. Contributions are typically *evaluated* by a jury of experts and, more and more, additionally evaluated and commented on by participants. Results of the evaluation(s) are then used to *determine the winning submission(s)*, which are at large granted a *prize* in form of money or assets (Bullinger et al. 2010; Fueller et al. 2006; Leimeister et al. 2009; Piller and Walcher 2006). In comparison to other crowdsourcing approaches like virtual communities for innovation (Fueller et al. 2006), innovation contests build on the means of *competition* to enhance quantity and quality of submissions (Bullinger et al. 2010; Hayek 1945).

Seemingly paradoxical, many of today's IT-based innovation contests are organized on platforms which offer applications for interaction and *cooperation*. Applications cover communication tools for information exchange (e.g., messaging), browse, and search functionalities for interesting submissions, and even collaborative spaces for the development and refinement of ideas.

3 Scope and Objective of Innovation Contests

Concerning the scope of innovation contests, two major strategic application areas can be distinguished: on the one hand advancement of technological or societal development, better known as “greater good”, and on the other hand identification of solutions for “corporate challenges”. Both application strategies use innovation contests to support R&D and innovation activities as well as to enhance communication about the organizer.

In addition to scope, we distinguish three strategic objectives among the occurrences of innovation contests: stimulation, development, and promotion. **Table 1** provides an overview on scope and objective of innovation contests.

3.1 Greater Good

Innovation contests with the strategic scope of “greater good” can be traced back to early contests addressing the solution of a challenge which is of general importance, e.g., the *Spanish Longitudinal Prize*. The *Ansari X-Prize* is a current example for this kind of innovation contest. In 1996, the X-Prize Foundation, a non-profit organization, published the challenge to be “the first private team to build and launch a spacecraft capable of carrying three people to 100 kilometers above the earth's surface, twice within two weeks”.¹ While the winning team was granted \$ 10 million, an even greater general benefit has been created by the advancement of knowledge in aerospace (cf. A.1 in **Tab. 1**). This has further been pushed by more than \$ 1 billion third party investment in the aerospace industry and related industries (A.2). By

Table 1 Scope and objectives of innovation contests

Objective	Scope	
	Greater good (A)	Corporate challenges (B)
Stimulation	1. Research and knowledge creation 2. Investment in industry	1. User feedback and identification of trends 2. Idea generation
Development	3. Skills 4. Business	3. Ideas/designs 4. Concepts/solutions
Promotion	5. (Social) welfare 6. Sustainability 7. Environment protection	5. Brand/image 6. Organizational change 7. Corporate social responsibility 8. Recruiting/HR

participation, contestants have the possibility to develop skills (A.3) and competences. In particular, if the submission of a business plan is required, such IT-based innovation contests stimulate entrepreneurship, i.e., the development of new businesses (A.4). This illustrates that innovation contests can be used to trigger research and knowledge creation as well as investment in industry.

Frequently, also public institutions organize innovation contests to enhance greater good. One example is *Aufbruch Bayern*,² an innovation contest organized by the government of Bavaria to identify the most innovative solutions in the fields of family, education, and (technological) innovation. Citizens are asked to submit ideas, existing projects, and best practices. The best submissions will be discussed in the cabinet and are incorporated into the yearly governmental statement. Similarly, the *Go London Social Innovation Competition*³ has encouraged people to think about how they can get active and put forward their ideas on how to make Londoners walk more. These publicly organized contests usually center on domains which are of interest to the broader public. Resulting advancements in research, e.g., medicine, contribute in the long run both to scientific advancement and to improving social welfare (A.5).

Development of skills (A.4) is a main objective of innovation contests targeting *student* participants. An integration of contests into education has been found useful to stimulate development of both, relevant domain skills and social skills (Bullinger et al. 2010). The *Challenge: Future*⁴

global student contest is an example of such an educational innovation contest; beyond development of skills, it targets the promotion of sustainability (A.6) and environment protection (A.7). Further representatives of educational innovation contests range from text-based submission of ideas for software (Leimeister et al. 2009) to teams of students visualizing terms from an Information Systems wiki (Bullinger et al. 2010) and a competition of undergraduates in building Lego-based robots (Martin 1994).

Overall, innovation contests with the strategic scope of *greater good* have the potential to promote a magnitude of goals on a macro-economic level. They are driven by public organizations as well as non-governmental organizations such as foundations and are increasingly used for educational purposes.

3.2 Corporate Challenges

Innovation contests with the strategic scope of “corporate challenges” can be traced back to early contests addressing the solution of a corporate problem, e.g., the *Billiard Ball Prize*. In more recent times, innovation contests with this strategic scope have often been organized to collect user feedback and identify trends (cf. B.1 in **Tab. 1**). By organizing an innovation contest, the pool for idea generation (B.2) is broadened as the organizer taps into the wisdom of the crowd. These contests typically reward a set of winning submissions. Submissions, i.e. ideas/designs (B.3) or even concepts and solutions (B.4), are used as creative input for the development of new products and services.

¹<http://space.xprize.org/ansari-x-prize>.

²<http://www.aufbruch-bayern.de>.

³<http://go.london.nhs.uk>.

⁴<http://www.challengefuture.org>.

The collection of innovative ideas, concepts, or solutions can be realized by a) directly asking for *challenges* which people face in their daily live. For instance, Swirl asked participants of the *Smellfighters Contest*⁵ which odor-related challenges they face and would like to see solved.

Alternatively, organizers can b) ask the crowd of potential participants for *new product or service concepts*. The *LED-Emotionalize your Light Contest*⁶ of OS-RAM is a representative of this approach. It required product ideas and concepts based on LED-technology in order to gather new business opportunities and products of strategic relevance (Bullinger et al. 2010).

Going even further, organizers might c) request the development of fully developed solutions to a defined problem. Solutions can encompass rather simple *design* tasks, as in the case of the *Doritos Crash the Superbowl Competition*,⁷ where the design of an advertisement was required. Other IT-based innovation contests, like the *Netflix Prize*⁸ or *Google's Android Developer Challenge*⁹ ask for more refined solutions. The Android Challenge called for the development of applications based on the Android operating system for mobile phones. These contests focus on few or only one best solutions and typically offer high monetary prizes.

Turning to the overarching object of promotion, innovation contests with the strategic scope of corporate challenges are frequently used as communication tools to support marketing and to influence the establishment of corporate image (B.5). Thereby, organizers draw on the extensive brand exposure which participants have while active in the innovation contest to stimulate marketing and word of mouth.

Innovation contests are also used to support *organizational change* (B.6), asking employees to submit their visions in times of change (Klein and Lechner 2009). Going beyond employees, the integration of different stakeholders can be realized to satisfy claims of corporate social responsibility and offer a platform to promote these needs (B.7). Last but

not least, innovation contests allow identification of and interaction with participants who show desirable characteristics for recruitment (B.8). In highlighting the creativity and solution orientation of participants, an innovation contest which publishes a corporate challenge also becomes a tool for human resource management.

Overall, innovation contests with the strategic scope of corporate challenge have the potential to promote a set of goals on corporate level. Typically driven by one organization, innovation contests integrate need and solution information of participants and support the organization with different activities from research and development to marketing or human resource management.

4 Innovation Contests – Future and Outlook

Innovation contests have a longstanding tradition to solve complex tasks published by public institutions or companies. Today's (IT-based) innovation contests provide a platform for a competition of innovators who use their skills, experience, and creativity to submit a solution to a particular contest challenge defined by an organizer (Bullinger et al. 2010).

Given the large strategic potential of IT-based innovation contests, it can be stated that the majority of current contests still has room for improvement. The surge of usage in practice is often realized by means of a trial and error approach to identify the best way of tapping into the wisdom of crowds. Different strands of research seem necessary to better understand this powerful tool. A first open question is the selection of suitable participants, their attraction and activation throughout the contest. This brings about the integration of different types of innovators (Neyer et al. 2009). While today customers and suppliers are targeted in open innovation activities, peripheral innovators in terms of employees outside the R&D department have only marginally been taken into account so far. Still, these might provide valuable input, by aggregating all the different views in the organization. Second, the

selection of the most promising submissions is still an unsolved task (Moeslein et al. 2010). Research seems necessary on the potential of open evaluation, i.e., the crowdsourcing of evaluation and selection of submissions. Since innovation contests increasingly allow participants to vote and comment on contributions, that information could be used. As a final remark, the interplay of competition and cooperation in the per se competitive setting of innovation contests and their correlation with innovativeness deserves further attention. In particular the influence of negative behavior of participants, e.g., by negatively rating competing submissions or by spreading negative word of mouth is a challenging question for both research and practice.

Open Access This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

References

- Bullinger AC, Neyer AK, Rass M, Moeslein KM (2010) Community-based innovation contests: where competition meets cooperation. *Creativity and Innovation Management* 19(3):290–303
- Fueller J, Bartl M, Ernst H, Muehlbacher H (2006) Community based innovation: how to integrate members of virtual communities into new product development. *Electron Commerce Res* 6(1):57–73
- Hayek FA (1945) The use of knowledge in society. *American Economic Review* 35(4):519–530
- Klein D, Lechner U (2009) The ideas competition as tool of change management – Aspects of triggering ideas. In: *Proceedings of the 15th AMCIS, San Francisco*
- Leimeister JM, Huber M, Bretschneider U, Krüger H (2009) Leveraging crowdsourcing – Theory-based design, implementation, and evaluation of activation-supporting components in IT-based idea competitions. *Journal of Management Information Systems* 26(1):197–224
- Martin F (1994) A toolkit for learning: technology of the MIT LEGO Robot Design Competition. In: *Proceedings of the Workshop on Mechatronics Education, Stanford University*
- Masters WA, Delbecq B (2008) Accelerating

⁵<http://www.smellfighters.com>.

⁶<http://www.led-emotionalize.com>.

⁷<http://www.crashthesuperbowl.com>.

⁸<http://www.netflixprize.com>.

⁹<http://code.google.com/android/adc>.

- innovation with prize rewards: history and typology of technology prizes and a new contest design for innovation in African agriculture. IFPRI discussion paper 00835. Washington
- Moeslein KM, Haller JBA, Bullinger AC (2010) Open Evaluation: Ein IT-basierter Ansatz für die Bewertung innovativer Konzepte. HMD – Praxis der Wirtschaftsinformatik, Sonderheft: IT-basiertes Innovationsmanagement 273:21–34
- Neyer AK, Bullinger AC, Moeslein KM (2009) Integrating inside and outside innovators: a sociotechnical systems perspective. R&D Management 39(4):410–419
- Piller FT, Walcher D (2006) Toolkits for idea competitions: a novel method to integrate users in new product development. R&D Management 36(3):307–318
- Surowiecki J (2004) The wisdom of crowds: why the many are smarter than the few and how collective wisdom shapes business, economies, societies, and nations. Anchor Books, New York