

Letter from Industry

Solving complex problems: the Seeking Solutions approach

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Abstract. This article describes the Seeking Solutions approach a problem solving conference using open innovation. The Seeking Solutions process consists of four steps: a call for problems, problem selection, problem broadcast, and a collaborative event. This approach has been successfully used for several events since 2010 with concrete results and real impacts. By mixing open innovation and collaboration, the Seeking Solutions approach brings a new way to solve complex problems and generate real innovation.

Keywords. Local Open Innovation, Open Innovation, Crowdsourcing, Broadcast of Search, Collaboration, Seeking Solutions.

1 Introduction

Companies have to innovate always quicker in order to remain sustainable and profitable in this fast changing world. Innovation is very often wrongly associated only with invention or development of a new technology, but in order to successfully create value in the market, companies have to take into account social, environmental, political, human and economic factors. In fact innovation becomes a question of complex problem solving.

There are a lot of processes and best practices to successfully address product development and marketing but these processes do not take into account the fact that you may not have the best resources in your own company to achieve success. Open Innovation is a new way to overcome this problem but it still does not address the question of growing complexity of problem solving.

We propose a new way to enable innovation in a complex world: the Seeking Solutions approach. The approach is based a combination of open innovation and collaboration. In this paper we will shortly present the methodology and give some examples of companies that tried it and got great and concrete results.

2 Seeking solutions

The Seeking Solutions approach is a problem solving conference. It consists in a 4-step process:

1. **Call for problems:**

The promoter of the event asks his community to submit complex problems that defy the standard analyses of his experts in the field. This usually takes place several months prior to the event itself.

2. **Formulate selected problems:**

Once the problems have been submitted, we help the promoter to select those most likely to garner interest at the event and to formulate them so that they can be more easily shared. An expert of the problem's domain, called an ambassador in our case, is put in contact with the solution seeker. Just by asking some basic questions, the ambassador is able to help the solution seeker further define the problem and ensure that the description that will ultimately be posted on a web-based platform is sufficiently clear and broad.

3. **Disseminate to a wider community – Problem broadcast**

We disseminate the problems to be addressed to a vast range of specialists in a variety of fields. They can provide a different outlook on the problems raised, ask preparatory questions and participate in the event. Broadcast is done through a web-based platform including as much information as possible, such as figures, references, or details of failed solutions.

Two strategies are employed during the problem-broadcast step. A general broadcasting approach ensures that everyone who thinks they could help has the opportunity to participate. A targeted broadcast to specialists based on expectations about what type of expertise might be relevant to a particular problem is also used in parallel.

4. **Seeking solutions events**

The last step is what differentiates the Seeking Solutions approach from other open innovation techniques, because it involves a real event where non-virtual collaboration arises. Solution seekers and problem solvers come together during a full-day session to focus on the selected problems. Careful preparation is required to ensure maximum output from the event. The collaboration process is divided into three phases: i) divergence, ii) exploration, and iii) convergence. Our facilitation methods allow for significant and creative interaction with experts who are normally not part of the same networks, and take full advantage of the “cross-pollination” of brainpower effect.

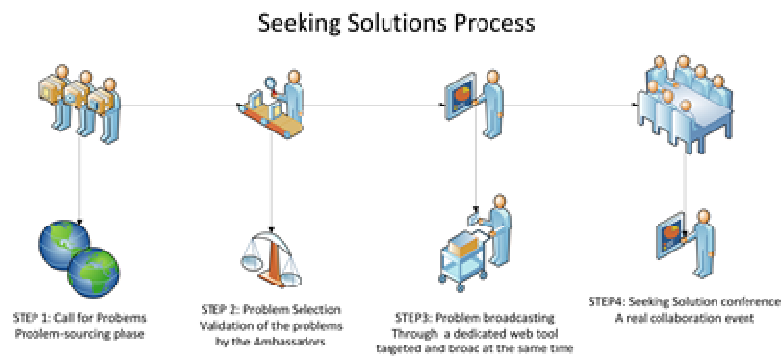


Fig. 1. The Seeking solutions process

This approach that seems very simple and straight forward has been developed over the years and requires a lot of details that need to be taken into account in order to get successful outcomes. In order to help individual companies, cities, conference organizers, industrial clusters or economic development organizations to organize successful Seeking Solutions events, we have created a company called En Mode Solutions (EMS). EMS provides all the support to put the approach in place and continues to improve the methodology.

3 Some examples

Several events have taken place since the emergence of the approach in 2010. In the following paragraphs we will describe some examples of successes obtained during these different events.

3.1 The Kruger case study

The first event took place in December 2010 as a regional problem solving conference in Quebec and was called Quebec Seeks Solutions (QMS). Ten problems were submitted by nine industrial companies and 175 persons participated to this event. Two major partners helped this event to be a success: *IDTEQ*, a group of five applied R&D centers and *Quebec International*, the local economic development organization.

During this event Kruger, a paper mill company, submitted the following problem: they needed to find innovative applications to use their new coating machine in their Trois Rivières' plant or else they would be forced to close the plant.

Natural problem solvers would have been found within the paper industry, but the innovative solution actually came from a researcher in the agro-environmental domain who proposed that Kruger should produce paper tarpaulins with embedded fertilizer to preserve soil humidity and fertilize the crops. In fact the use of mulch in horticultural production is a widespread practice in agriculture. However, the use of plastic mulch raises a number of environmental problems since such plastic films are too dirty to be recovered and are sent to landfills. Therefore developing effective agriculture mulch made from recycled paper could overcome this environmental problem and offer as well the pulp industry new markets for their cellulose products.



Fig. 2. Paper tarpaulin instead of plastic

This solution was unobvious and highlighted the importance of "outsider" input into the innovation process that the seeking solutions approach enables. As a result of this idea of new product two applied R&D centres (IRDA and FPInnovations) proposed a feasibility study to Kruger, developed a tarpaulin, and began testing it less than eight months after the event. Following this preliminary feasibility study, a second phase of research and testing in real conditions involving IRDA, FPInnovations, Kruger, Tembec Resolute Forest Products and Dubois Agrinovations, was proposed and the Province of Quebec has decided to fund it with a half-million-dollar joint project that is currently ongoing.

3.2 QMS Second edition examples

Thanks to the success of the first edition, QMS came back in May 2012. Nine solution-seeking companies and 162 problem solvers participated in the two-day event. Here are two examples from this second edition that have led to great benefits for the seeking companies.

Fourrures Grenier is a SME producing fur boots. They had a problem in their manufacturing process since years because of the rigidity of the sole they used. During the event they not only discovered a solution to their manufacturing problem but also a new partner from the composite industry that now produces the sole. The new sole is more flexible and therefore eliminates the manufacturing problem they had. It is also produced at lower costs and with a local partner avoiding cultural, language and contractual complications they had in the past. For this SME, participating to QMS made a huge difference in their potential to grow and to increase productivity.



Fig. 3. Solving a fur boots problem

GL&V Canada, did submit a problem of equal distribution of the output flow of up to 100 hoses for a central distribution system. These complex systems are used in the paper mill industry. Investigation of non-uniform flows requires shutting down the whole system for several days leading to huge production uptime losses. The solution

found after the event is a very simple and low cost method that avoids to shutdown the whole system. The few hundred dollars solution helps saving millions in maintenance cost. The solution came once again from the agro-environmental industry and GL&V would never have found this solution without the serendipity that the Seeking Solutions approach enables. They are using this new solution since January 2013 and generate an excellent ROI.

3.3 Next events

In the following months several other events will take place. The first one is called Polymers Seeks Solutions and is an event organized specifically for this sectorial cluster. The Innovation Polymères Consortium is the promoter and En Mode Solutions implements it. Six problems related to that industry have been submitted and here is one example. Bombardier Produits Récréatifs (BRP) has submitted a problem around the formation of porosity in a gelcoat projected robotically on a mold. The porosity is a major aesthetic defect that the company hasn't succeeded in eliminating after about 6 months of experimental work and they are now seeking for solutions in an open innovation mode. The event will take place September 26th in Saint-Jean-sur-Richelieu, Canada.

The 3rd edition of Quebec seeks solutions will take place in November and 8 problems will be addressed. The problems have not been broadcasted up to now; the ambassadors are in the process of defining them with the seeking companies. Two other events in the Mining and in the Health industry will also take place before the end of 2013.

The increasing number of events and the results already obtained show that the approach is responding to a need that was not filled up to now.

4 Conclusion

Open innovation and open problem solving approaches require a change of mindset to reach its full potential. A change of mindset most often requires a pain or an enormous challenge to work it's way. The current economical context is a good enabler I would think! Because statu quo is not an answer for anyone, in any type of industry and in any country right now!

Many problems that the companies are facing today are complex because they mix technical, environmental, social, and political issues. To face this growing complexity, classical problem-solving methodologies are no longer appropriate. The Seeking Solutions approach has the potential to address the complex challenges of the next decade and we believe that it can help to migrate from a collection of intelligences to a real collective intelligence. The next step is to encourage more and more companies to try local open innovation and to convince local governments to support this movement.

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