TRIZ + CROWDSOURCING = NEXT GEN OF CORPORATE INNOVATIONS?

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Abstract

Corporate crowdsourcing platforms have been pushing the corporate innovations to an unattainable altitude compared to the old approaches of having a dedicated innovation guru or a dream team within a company or just a "simple" R&D for the new products pipe. However, inability to improve the quality of the generated ideas has got the big companies to a slippery slope of increasing the number of idea contributors more and more up to the moment when an entire list of growing pains became obvious:

- Huge friction of idea development cycle

- Low chances of creating real groundbreaking solutions based on open innovation paradigm

- Low adherence of the ideation initiatives contributors

- Unacceptable percentage of garbage ideas

The paper will review the existing crowdsourcing platforms, juxtapose them and formulate the features of the silver bullet for all the aforementioned hot buttons.

Keywords: TRIZ, Crowdsourcing, Innovations, Ideation, Idea generation software.

1. Introduction

Earlier models of innovation emphasized innovation as an outcome of research and development (R&D) activities. These R&D activities led to the creation of new products, and companies that invested in R&D were fostering more innovation and creating barriers to competitive entry [1]. Alfred Chandler provided an extended account of the rise of the US corporation during the 20th century. A core element of his account was the ability of US firms to manage economies of "scale and scope" that emanated from internal R&D investments [1]. The dominant conception of successful innovation towards the end of the 20th century was inspired by these insights. Innovation resulted primarily from internal R&D activities, and these led to new products, and even to new businesses. R&D was a barrier to competitors, and could enhance a company's competitive position in the market. Some scholars modelled innovation "races" between companies making heavy R&D investments, trying to be first to invent a new product or technology.

But this conception had its weaknesses, and over time these weaknesses culminated in a realization that it was no longer a sustainable innovation model for most companies in most industries. One key weakness was the problem of "spillovers", outcomes that were created by R&D but not captured by the firm that performed the R&D. As product market competition intensified, spillovers grew in size and importance, causing many companies to rethink their willingness to continue to invest in R&D. Another issue was the anomalous situation in which smaller companies with less R&D capability unseating established incumbent firms with much more extensive R&D investments. IBM was overtaken in hard disk drives. Cisco surged past Lucent and its Bell laboratory network. Leading pharmaceutical companies are struggling

to sustain their blockbuster products and the deep internal R&D pipelines to develop them. These outcomes were hard to understand within the internal R&D paradigm. Taking a step back, though, revealed that another model of innovation could account for these challenges far more readily. Leveraging external sources of innovation could enable firms to innovate faster or more effectively in certain instances than relying exclusively upon internal R&D. Letting unused internal ideas and technologies flow outside the organization through licensing, joint development, or spinoff s could identify new markets and new applications for technology. This is where the concept of open innovation was born. Open innovation is defined as "the use of purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation, respectively". There are thus two sides to the model. One side is "outside in", bringing in external ideas and technologies into the innovation process. The other side is "inside out", enabling unused internal ideas and projects to go outside for others to use instead. And it is the business model of the firm that determines what to look for on the outside, and what to let go to the outside [1]. All that became quite foundational to the incipient crowdsourcing projects that later solidified into corporate platforms.

2. Existing solutions and associated drawbacks

In general, all the main crowdsourcing platforms can be split in two big teams: corporate ones and public. Probably the most famous example of the former is Procter & Gamble's (P&G) Connect & Develop. P&G formulates innovation challenges, cascades them down to the innovators, inventors and researchers from all around the world and harvests the ideas.

One such need on P&G's platform is the need of a lipstick that will glow for more than 4 hours, much longer than today's standard lipsticks. While this is not a problem that anyone in cosmetics would find surprising, the company that would find a solution to this problem first, would gain an essential edge over their competitors. Cases like this – where it's precisely the high impact that a solution would have – that makes them nonconfidential are very frequent and exist in all industries, which means that refraining from open solution search because of confidentiality issues is often irrational [2].

So Connect & Develop program looks outside. It functions as a sort of an interface between the company and interested strangers where the latter are playing the key role.

A bit of a different approach has been proposed by Clorox. It mixes outsiders with the internal innovators and allows the internal gurus to give a shape to all the innovation related talks or discussions or, maybe, the development projects. Clorox has built CloroxConnect: a platform where innovators and researchers can sign up to discuss questions among each other and with employees of the company, like in a forum, lead by a corporate community manager. The problem with this kind of platforms is that they compete with specialized science wikis and forums as well as research focussed social networks like Research Gate, Academia, and generalists like LinkedIn, even Twitter, Facebook, as well as infrainstitutional networks like Max Net (for the Max Planck Institutes) or university intranets. Given their limited scope combined with the natural resistance of researchers against anything that seems marketing leaden, makes it very difficult to endow this kind of corporate platforms with an added value compared to existing social networks [2].

A bit similar to P&G Connect & Develop is Lego platform. This platform addresses customers or fans of a company's products. A very successful initiative of this kind is Lego Mindstorms. It has lead to several very successful innovations for Lego that have then been commercialized by the company. While this kind of initiatives tends to lead to highly motivated and (nearly) self-driven communities, it's not something every company can aim

for. First of all, Lego builds products with high potential for fan-ship. This is not the case with a company, that build, say, heaters. Furthermore, fans of Lego usually like to build and invent things, they are technical people. This is not the case with fans of, say, L'Oréal [2]. We would stress exceptional importance of having very devoted people in your crowd which has been proven by Lego experience. Crowd "Quality" is much more important than its Size, we will get to that later.

A bit opposite to that would be Shell's Gamechanger. While it's rather successful, all ideas that have lead to products and process improvements have come from inside the company. Although it's formally declared to be open towards the external world, most of the ideas submitted to the program come from inside Shell rather than outside innovators [2]. The details are rather unknown but we can guess that some administrative resource has been used to promote employees' adherence to the program. Brute force approach. Not the smartest way to encourage people but does works sometimes. We will later see how crucial it is to make people stick to the crowdsourcing activities.

3. A silver bullet

First things first. We will start with the features that for sure should not be a part of a corporate crowdsourcing platform and then have a look at their opposite extremes, those that are key and must.

Nowadays, the corporate crowdsourcing platforms often, or almost always, have very extensive managerial tools. Once an idea is in, the entire workflow is organized around it which requires extra research, quite some time and quite some people to be engaged. Keeping in mind that "normally" the internal innovation campaigns bring a lot of garbage ideas which, in their own turn, require a lot of resources for analysis then at some point the stakeholders realize they have run the campaign for the sake of having it and sinking in its processing. What was the use of it?

1. First necessary feature of the platform of the future is a short processing rout. Whatever is associated to financial aspects of an idea, its outlooks, implementation complexity can be analyzed and assessed offline or be at least simplified. Do not overcomplexify it otherwise users will start to avoid using it. In the age of Facebook it should be just "like/dislike" kind of assessment with further details offline or, maybe, in a different kind of software.

One more reason for staying slim is a simple mobility trend. Nobody wants to be tied down to his or her laptop or desktop computer. People want to have all the software pieces handy: smartphones and tablets. This trend puts its own limits on the corporate crowdsourcing as well. Employees would rather take refuge in answering an innovation campaign question in the "Facebook comment style" on the go than spending time in front of their laptops scratching their heads then write an email or something and then click "send" finally.

2. Secondly and probably the most important feature of the Next generation crowdsourcing platform is a virtual innovation Mentor, someone or something that could strengthen or even mimic the idea generation process insuring only fresh and really strong ones pop up. This is the feature that could potentially equibalance the idea management complexity and harmonize corporate crowdsourcing counterparts: ideation and idea management.

Not surprisingly that Artificial Intelligence, eventually, will take over and will become that Mentor but since AI and its applications for creativity (especially technical creativity) are at

the very early stages of development then the corporations should survive with something intermediate for the upcoming 5-10 years. The Mentor will solve the problem of flooding a company's innovative community with numerous low quality ideas and switch the focus of the contributors to rare strong ideas.

Theory of Inventive Problems Solving (TRIZ) can play the role of the Mentor and surely can be the basis for building engineering AI. However, as it always happens when an idea faces reality - lots of secondary problems can kill it. The biggest problem about having TRIZ as an innovation Mentor for the corporate crowdsourcing platforms is its complexity. Here, we again are facing the same issue of messing up with sophisticated things.

Probably all-pervading 80/20 rule can also be applied to TRIZ, resulting in "TRIZ bare bones" providing almost the same value at a lot lower cost but this still to be proved. No smoking gun or a slightest hint telling it is possible are available but some works of Boris Zlotin indicate it can be true [3, 4].

3. Even if one creates THE corporate crowdsourcing platform of the future, manages to attract only relevant people and gives then the ideation support tools there is still one question that stays open…

Adherence… How do you "make" people provide their input? How do you foster them to use the software every time they face an engineering (well, a non-technical as well) challenge? How do you stop them from deleting your software?

Administrative measures probably won't work all the time (though worked for Shell) and will generate quite some opposition/antagonism. Financial incentive can be pretty high for the crowdsourcing platforms and therefore is also not acceptable but the Peer-to-Peer (P2P) telecommunication networks approaches might work.

P2P networks are also the communities of people providing services to each other or sharing some assets/resources based on very simple philosophy: the more you are giving to the community – the more the community is giving to you. It is just fair if the corporate ideation platforms will be built around the same paradigm. The more ideas an individual is proposing in response to the innovation challenges the more innovation challenges he/she should then have a chance to create so that other can respond and support him. The system would require some sort of tokens or internal currency that could be used to "purchase" timeslots for running open innovation campaigns engaging creative resources of the other companies. The internal intellectual resources usage should always stay unlimited and for free though.

4. At the first glance expanding the network size seems to be the most obvious solution to overcome lower efficiency of the TRIZ bare-bones proposed in 2.

Indeed, going beyond Facebook size (sorry Mark) would certainly increase the odds of the strong ideas generation by the virtue of simple statistics but the idea processing would also grow proportionally. It will kill the entire initiative stone dead: humongous servers, swarms of managers, lots of money and time!

I would say that the platform should be focused, or, let me put it this way: high-quality one, meaning it should not contain laymen at all, only people who are doing engineering, design or even are TRIZ-practitioners. That probably will not be a guarantee of high quality ideas generation but at least the percentage of garbage will be lower. It is a must. It is just a forbidding obstacle on the way. No apps for Facebook. No idea buckets for general public. Stay slim, provide ideation tools, incentives and relevant people.

4. Conclusions

As it has been expected there is no existing one-box solution. Famous writer Nicolai Gogol, who of course never dealt with Corporate crowdsourcing, has beautifully expressed it by his "Now, if you could attach Mr Anuchkin's lips to Mr Podkolyosin's nose, and take some of Mr Zhevakin's easy manner, and perhaps add Mr Omelet's solid build, I could decide on the spot".

Easy idea processing and development, well, unlike CloroxConnect's,

Innovation Mentor (a methodology or a mix of ones behind idea generation process) supporting Ideation process,

Adherence promoted in the smart ways, hmm, unlike Shell's ones, and

Relevant people like at Lego's project.

This is all needed to help corporations to decide on the spot.

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