

# Open Innovation

## The Innovation Model of the 21<sup>st</sup> Century

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Everything changes except change. Change is constant. To keep pace with the change it is becoming important for organizations to innovate and manage innovations. Those organizations, which do not innovate die. In the twentieth century organizations focused on closed innovations. In the closed innovation scenario, organizations innovated in a controlled, secretive and closed environment. The individual organization/firm takes the onus and responsibility internally, right from generating ideas to development of the product, its marketing, distribution, support services, and finances. In the twentieth century, organizations/firms following closed innovation process led to breakthrough discoveries, but due to the closeness of the innovations other organizations could not explore these ideas for their profit and growth. In the beginning closed innovations worked very well, however, gradually due to the changing market trends, the establishment of start-up firms with the help of private venture capital, led to rapid change in technology, products and services etc., and thus closed innovations were no longer sustainable.

Xerox Palo Alto Research Center (PARC) which was an innovative company followed a closed innovation model. The company developed innovative technologies like laser printing, computer mouse, LAN Card, Graphics User Interface for Windows, etc. which brought a revolution in the computer industry. Ironically, Xerox PARC did not benefit from the innovative technologies which they developed, in fact it was the other firms which gained profit financially from these technologies. Prof. Henry William Chesbrough used this as an example to explain how erosion of closed innovations led to a paradigm shift in business innovation and thus introduced the concept of *Open Innovations*, which assumes that “firms can and should use external ideas as well as internal ideas, and internal, and external paths to market as the firm look to advance

their technology” (Chesbrough, 2003a). Open innovation is an innovation management model as developed by Chesbrough (2003a; 2003b; 2004). 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” (Chesbrough, Vanhaverbeke, West, 2006). Open innovation is about bridging internal and external resources and acting on those opportunities to make innovation happen” (Lindgaard, 2011). According to business dictionary.com (<http://www.businessdictionary.com/definition/open-innovation.html#ixzz3X4PgaJMd>) open innovation is a “business concept developed by Henry Chesbrough, which encourages companies to acquire outside sources of innovation in order to improve product lines and shorten the time required to bring products to market, and to market or release internally developed innovation which does not fit the company’s business model but could be effectively used elsewhere” .

The open innovation process focuses on networked innovations environment, which speeds up an innovation in a cost-effective manner. Open innovation enables organizations to collaborate, and share knowledge, expertise and resources with other organizations, which in turn enable the growth of the organizations collectively. Many organizations realise that Open Innovations enables the organisations to overcome obstacles faced by them in the development of new products (Nerone, Osiris & Liao, 2014). Now Open Innovation is observed as an integral component of innovation, research and practices in an organisation.

### Characteristics of Open Innovation

In contrast to the closed innovations, six characteristics of the Open Innovation (Chesbrough 2003a; 2003b; Marques, 2014) can be enumerated as follows:

1. In addition to the ideas from internal people the ideas can also flow in the organisation from the external sources. No single organisation has people who can only have all the innovative ideas related to their product, process and management.
2. The Research and Development (R&D) activities of external organisations can also create value and profit. It is not necessary that to make profit or create value the organisation must discover, develop and supply everything on its own.
3. Open innovation aims to merge between external innovative ideas and internal management.
4. An organisation can develop applications and perform basic research based on the discovery done by another organisation.
5. Judiciously using the internal and external ideas and unifying the knowledge and win rather than having the attitude that we create the most and best ideas and thus we will win.
6. Using all available resources that can lead to an efficient and effective process.

### Types of Open Innovation Process

1. **Inbound (outside-in):** Inbound open innovation is the process in which external ideas and technologies are imported into the organizations own innovation process.
2. **Outbound(inside-out):** Outbound open innovation is the process in which the underutilised ideas and technologies of an organization are given to outside organizations so that they can incorporate them in their innovation process.
3. **Coupled:** Coupled open innovation process is the appropriate combination of inbound and outbound innovation process.

### Crowdsourcing a type of ‘open innovation’

With the proliferation of Information and Communication Technology (ICT), open innovation based organizations have moved towards ICT enabled inbound open innovation practices. Nowadays organizations around the world have recognised the enormous capability and potential of crowds with their varied educational, socio-cultural professional backgrounds to enrich their innovation process. Now, let us understand what is crowdsourcing. Crowdsourcing refers to the process of harnessing the potential of a global pool of expert individuals and organisations, with varied educational and professional qualifications, who through a web-enabled platform in a cost-effective way develop and implement creative solutions to innovation challenges. As mentioned in Wikipedia, (<https://en.wikipedia.org/wiki/>

Crowdsourcing) crowdsourcing is the process of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an online community, rather than from traditional employees or suppliers. Organizations are now implementing crowdsourcing which is one type of model for open innovation. Activities right from the generation of an idea, and the development of the idea, to formulating the concept is being implemented through crowdsourcing. This in a way unleashes the potential of crowd to not only get involved in merely given ideas but also giving a shape to it so that it can be a part of the innovative process of the organization. Crowdsourcing harnesses the collective intelligence of the crowd.

### Elements of Crowdsourcing

1. **Crowdsourcer:** A person managing the entire processing of crowdsourcing is a crowdsourcer.
2. **Crowd:** People who do the work are defined as crowd.
3. **Crowd platform:** A platform on the internet where the contribution of the crowd is put and managed.
4. **Communication tool:** A tool to communicate with the cloud. This could be done through the crowd-platform or through other tools using the internet.

One can also crowdsource without a crowd-platform and using other means of communication than internet. However, crowd-platform and communication tools using internet enables an organization to gather large crowds, which can also work in collaboration rather than in isolation.

### Types of Crowdsourcing for Open Innovation

- **Crowd contests for ideas:** This is one of the most straight forward way of crowdsourcing for innovation. Say, you are building a website for your organization. You have prepared the prototype of the website, however you look of better ideas on how to enhance the functionality and look and feel of the website to facilitate the stakeholders. Thus what you do is you post the prototype of the website on the internet along with a request for proposals for the same. The members submit the proposal. You select the best and develop your website accordingly. You also give a prize to the best proposal/idea to award the individual from the crowd who created it. We Thing (<https://www.wething.com/en/explore/idea-competition/>) is one such portal, which organizes idea competitions on various issues. The Ministry of Health and Family Welfare launched a contest

on MyGov (<https://blog.mygov.in/announcing-the-top-three-entries-of-contest-to-name-awards-for-clean-public-health-facilities/> ) to crowd-source a name for the *Swachhta* Awards for Clean Public Health Facilities . MyGov launched a contest for the PrimeMinister’s Mobile App in collaboration with Google.

- **Microtasking through contests:** Say if you need a solution to a specific problem. In this case also, you can ask the **crowd** to provide possible solutions to a specific problem. It is mostly found that the solutions provided by the diverse group may enable organizations to think differently and define business rules in different ways which might be the need of the hour.

Today online platforms such as TopCoder, Kaggle and InnoCentive provide crowd-contest services. TopCoder is a company, which organises contests in computer programming. Useful and innovative software are being developed through crowdsourcing and the software is then licensed for profit by TopCoder (<http://www.topcoder.com/> ). The competitors involved in the development of the software are paid royalties based on the sales of the software. Kaggle is an online platform dedicated to competitions related to predictive modelling and data analytics. Companies and researchers around the globe post their data, and data miners and statisticians compete with each other to solve complex data science problems. Top competitors are also invited to work on the most interesting and sensitive business problems from some of the world’s biggest companies through Masters competitions (<https://www.kaggle.com/>). Innocentive is a another crowdsourcing company which commissions research and development problems as challenges and gives award to the person who provides the best solution to the problem related to the field of mathematics, engineering, chemistry, life sciences, computer science, etc.

### Examples of Open Innovation

Through a sample of 31 manufacturing-based firms belonging to 12 different industries, Shiv S. Tripathi,

“Every once in a while, a new technology, an old problem and a big idea turn into an innovation.”

—Dean Kamen

explores the types of collaborations that they have with various related or unrelated organizations as they engage in open innovation. Some of the other open innovation initiatives are given below.

#### *Using open innovation to create new therapies for patients*

AstraZeneca which is a multinational pharmaceutical and bio-pharmaceutical company realized that though they have a core scientific team working on breakthrough pathways in medicine they need collaboration and support of other academic and scientific agencies doing research in the same field. This motivated them to launch a massive open innovation project named the AstraZeneca open innovation program (<https://openinnovation.astrazeneca.com/about-us/our-rnd-focus-areas.html>). According to Kumar Srinivasan VP, Scientific Partnering & Alliances, IMED Biotech unit, AstraZeneca “Partnering with academic and industry scientists outside AstraZeneca is critical. Combining our strengths and resources with the expertise and knowledge of our partners will ultimately benefit patients. We want partnering with us to be an easy and straightforward experience.”

#### *Open Innovation Initiatives at GE*

**GE which is one of the pioneers in advance manufacturing techniques and processing realised that to solve challenging, tough problems they need collaboration. Some of the important points of GE’s open innovation manifesto** are they do not only have all the best of ideas and thus they need collaboration of external experts and entrepreneurs; to collaborate with external agencies with transparency; providing access to pools of IP they have to enable the global brain to create new and beneficial outcomes etc. With the help of Open Innovation initiatives of GE by sourcing and supporting innovative ideas, wherever they might come from, and applying GE’s scale and expertise, GE’s approach to open innovation is helping to address customer needs more efficiently and effectively. A few such initiatives are First Build and Fuse. First Build (<https://firstbuild.com>), is one of the open innovation project backed by GE Appliances enables both external and internal individuals to collaborate together. It is a co-create collaboration platform to share and discuss ideas related to solving problems and create new home appliances products. This platform connects designers, engineers, and thinkers together. Winning ideas are made available for purchase. GE give access to the members to its micro factories which has the required machines and tools to turn the ideas into real product. The First Build project aims to provide a platform that can help both external and internal individuals to collaborate in terms of ideas sharing and manufacturing to reach innovative ideas for products and services. Fuse is another open platform of innovation

where people are invited to solve the most challenging engineering problems of the world.

### Open Innovation Initiatives at NASA

According to the open innovation website of NASA (<https://www.nasa.gov/open/plan/open-innovation.html>), NASA Space Life Sciences adopted open innovation model to develop challenges that try to find out innovative solutions to research and technology problems for human health and performance during human space flight. NASA offered these challenges to potential contributors through InnoCentive and Yet2.com. To evaluate an open source code problem NASA also collaborated with TopCoder, Harvard Business School, and London Business School.

### Conclusions

It is expected that Open Innovations will empower the current initiatives of GOI like “Skill Inida”, “Startup India” and “Make in India” to access new ideas and innovations which will also facilitate the above-mentioned initiatives. The Innovation Clubs and Innovation Incubation Centres established at Various Central institutes in India can also inculcate methodologies and process of open innovation to establish a network of people from different disciplines and passions from industry and academia to create a vibrant atmosphere where ideas are converted to sustainable products and processes. This will also lead to a better systemic innovation which is now-a-days on priority.

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**“Without change there is no innovation, creativity, or incentive for improvement. Those who initiate change will have a better opportunity to manage the change that is inevitable.”**

**–William Pollard**