Chapter 2
Open Innovation

Abstract This chapter introduces the notion of open innovation, which is about organizations making use of external ideas, solutions and technologies instead of only relying on its internal innovation. Three different forms of open innovation are discussed: inside-out, outside-in and coupled innovation, which differ with regard to the direction of the idea flows. The chapter also introduces a number of models for open innovation, including crowdsourcing, product platforming, collaborative innovation networks, and innovation contests. Digital innovation has transformed many businesses, enabling new kinds of smart, connected products as well as novel business models based on platforms.

Innovation is about new ideas, new products, or new processes. Innovation can be radical such as the digital computer, or it can be incremental such as new batteries with longer lifetimes. Sometimes, innovation is taken in a broader sense and is seen as the result of processes that combine novel ideas and products, with an impact on society at large.

Innovation can take place anywhere in society: in universities, in companies, at governments, among individuals, etc. It has often been the case that the innovations needed by an organisation have been produced by that organisation itself. In fact, there has sometimes even been resistance to using innovations generated elsewhere, as evidenced by the "not invented here" syndrome. This kind of innovation that takes place entirely within an organisation is commonly called *closed innovation*. While closed innovation can be successful for an organisation, it suffers from one major limitation: most of the smart and innovative people in any area work outside that organisation.

As a response to the limitations of closed innovation, the notion of *open innovation* has been proposed, defined by Chesbrough (2006) as "a paradigm that assumes that firms can and should use external ideas, as well as internal ideas and internal and external paths to market, as the firms look to advance their technology" (p. xxiv). Organisations should not only rely on their own resources for innovation but also make use of external ideas, technologies and people. Complementarily, organisations should also open up their own innovation so it can benefit others.

There are three forms of openness in open innovation, outside-in, inside-out and coupled. In the *outside-in* form, the initiator of open innovation unlocks its organisational borders to make use of external ideas and technologies. In the *inside-out* form, openness refers to situations in which the initiator of open innovation unlocks its own resources so that external people, e.g. developers, can use them. In this way, unused innovations are made accessible to others. Outside-in and inside-out open innovation can also be combined into a *coupled process* in which organisations work in alliances that involve both giving and taking.

Open innovation puts new demands on organisations' competence, so-called absorptive and desorptive capacity (Lichtenthaler and Lichtenthaler 2009). Absorptive capacity is the ability that an organisation has to evaluate and use external knowledge related to the outside-in form of openness. Desorptive capacity is an organisation's ability to exploit internal knowledge through external people, relating to the inside-out form of openness.

2.1 Models for Open Innovation

Open innovation can take many different forms, including crowdsourcing, product platforming, collaborative innovation networks and innovation contests.

2.1.1 Crowdsourcing

As defined by Merriam-Webster, crowdsourcing is "the practice of obtaining needed services, ideas, or content by soliciting contributions from a large group of people and especially from the online community rather than from traditional employees or suppliers". The word is a combination of "crowd" and "outsourcing" and the idea is to outsource work to a crowd. For innovation, the crowd could consist of customers of the outsourcing organisation but it could comprise external developers or suppliers and partners. Crowdsourcing is not a new phenomenon, for example, in 1714 the British government offered the public a monetary prize to whoever could provide the best solution to determining the longitude of a ship at sea. But crowdsourcing has become increasingly popular in recent years thanks to the opportunities offered by online platforms.

2.1.2 Product Platforming

A *product platform* consists of a tool kit and other resources that contributors can exploit, modify and extend. Examples of such platforms are mobile operating systems, which developers can use to build and distribute their mobile apps. Other

examples are SDKs (Software Development Kits), such as the Eclipse platform, which provide environments for designing software. Product platforms offer a common basis around which an organisation and external contributors can work together and generate innovations. As platforms typically are long-lasting, they provide opportunities for continuing and deeply integrated cooperation.

2.1.3 Collaborative Innovation Network

As defined by Gloor (2006), a *collaborative innovation network* is "a cyber-team of self-motivated people with a collective vision, enabled by the Web to collaborate in achieving a common goal by sharing ideas, information and work" (p. 4). Members of such a network collaborate and communicate directly with each other, instead of using hierarchies. They are intrinsically motivated and work together in order to support a cause or advance an idea. By participating in innovation networks, an organisation can both obtain ideas and innovations from the network and share its own ones. Thus, innovation networks enable outside-in as well as inside-out and coupled open innovation.

2.1.4 Innovation Contest

An *innovation contest* is an event in which an organiser invites participants and offers a prize for submitting innovations in the forms of ideas, prototypes, products or services. Chapter 3 (and the entire book) is dedicated to digital innovation contests.

2.2 Digital Innovation

Thanks to recent technical developments, novel ICT (Information and Communication Technology) solutions have been applied in many new areas. Social media technology has enabled social platforms, such as Facebook, LinkedIn and Twitter. Mobile technology has resulted in new communication devices, including smartphones and tablets. The Internet of Things has made it possible to combine digital solutions with well-established products resulting in enhanced or novel products, e.g. robot vacuum cleaners and self-driving cars.

This kind of digital innovation does not only apply to products and services but also to processes and business models. An example is Airbnb that uses a digital solution for matching travellers with people who have a room to rent. Another example is Uber that allows almost any car owner to become a taxi driver and lets customers find and order taxis using their smartphones. The innovation of these

companies does not reside in the services they offer but in their business models, i.e. how they connect actors in a network to create value.

Open data have recently become a key resource for digital innovation. The idea behind open data is that data should be free for everyone to use, reuse and distribute. There should not exist any restrictions in the form of copyrights, licenses, patents or other control mechanisms. As stated by the Open Definition (http://opendefinition.org/) "Open means anyone can freely access, use, modify and share for any purpose (subject, at most, to requirements that preserve provenance and openness)." Open government data have been advocated as a means for strengthening democracy as well as economic growth through digital innovation. By making government information accessible as open data distributed via APIs, novel services can be designed that improve transparency, accountability and public participation in decision processes. Open government data can also create business opportunities by enabling companies to develop services that process, integrate, distribute and present the data in new ways.

Open data can be used in many ways for open innovation. An example of inside-out openness is an organisation that provides open data through APIs to external developers. A digital service generated from this form of distributed development could either become viable outside the data providing organisation, or become a part of the digital service repertoire within the organisation. The latter scenario is an example of a coupled innovation process, meaning that the development initiative gradually moves back inside the data provider again, after external knowledge has been used to speed up the innovation process.

2.3   Read More

A classic text on open innovation is the book by Chesbrough (2006), which contrasts closed and open innovation, investigates business models for open innovation as well as the management of intellectual property and presents a number of case studies from large corporations. The Open Innovation Community offers a web site that "serves as an informational resource for thought leaders, consultants, authors, business leaders, academics and others who have a deep interest in open innovation" (http://openinnovation.net/).

Gassmann and Enkel (2004) introduce three process archetypes for open innovation: the outside-in process, the inside-out process and the coupled process. They suggest that the future of innovation is not about outsourcing internal innovation, but about following a flexible innovation strategy that includes outsourcing ventures, reintegrating new businesses, scanning and integrating new technologies and connecting external sources to the internal innovation process. Surowiecki (2005) investigates a key insight behind crowdsourcing: large groups of people can be smarter than an elite few and better at solving problems, fostering innovation and coming to wise decisions.

Lichtentaler and Lichtentaler discuss competences related to open innovation. In their framework they distinguish between internal and external competences and a firm's capacity to explore knowledge from other firms as well as their capacity to exploit knowledge through inside-out type of innovation processes.

References

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