

# MGMT

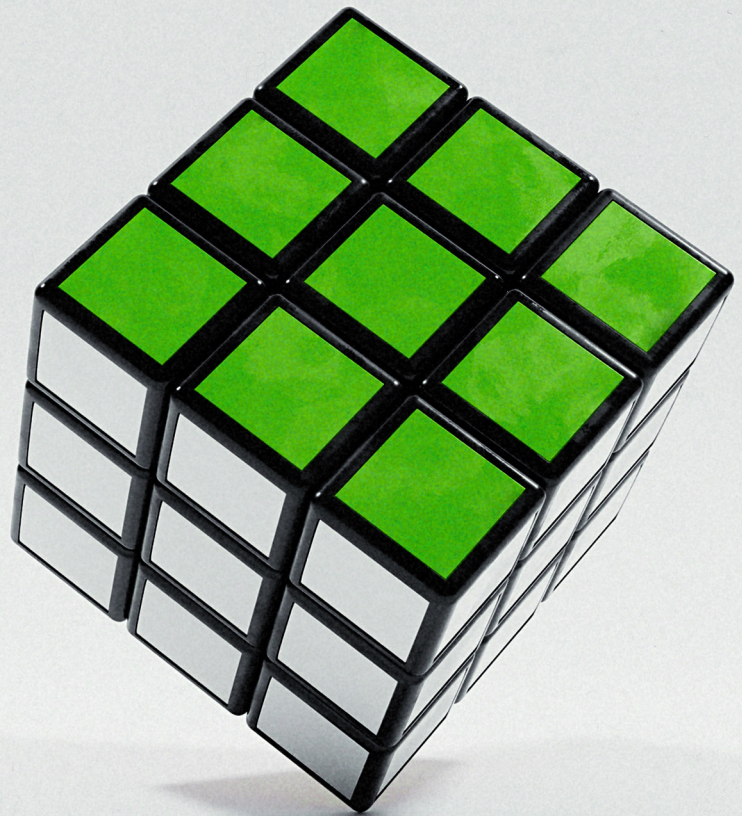
## of Innovation and Technology

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### Open innovation markets

— A new view on open  
innovation



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## — A new view on open innovation

By Ove Granstrand

Open innovation is usually viewed from inside out a focal firm, facing different strategies for combining internal and external ideas on its path to a product market. Open innovation could also be viewed from outside in as a set of markets for trading different inputs to and outputs from innovation activities of firms and other actors. The purpose of this article is not to criticise the conventional view of open innovation but to contextualize it by presenting a contrasting view that complements it. Both views can and should be used by technology and innovation managers and by start-up entrepreneurs as well as by innovation policy makers and innovation scholars to advance their understanding and use of open innovation.

Next time you meet an ambitious entrepreneur, or intrapreneur for that matter, ask what keeps them awake at night and busy by day. They will probably tell you about run rates and fund-raising needs, how hard it is to find really good developers and salespeople, and the painful experience of (not) letting people go. If they are honest, they may also describe the agony of having to project confidence to the team while privately acknowledging tremendous uncertainties.

### Old wine in new bottles breaks through

As is now well known, open innovation is referred to as a new paradigm defined by Henry Chesbrough 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 firms look to advance their technology". European Commission defines open innovation more specifically as "the emerging paradigm for innovation involving business models that use partnering, licensing and venturing to combine internal and external sources of ideas and technologies".

**However**, what today is commonly referred to as open innovation:

1. has a century old history in R&D and technology management practices
2. has been studied by innovation scholars since the 1970s, but under other labels<sup>1</sup>
3. has become widely popularized, practiced and studied since the early 2000s

Thus, open innovation is a new term for an old phenomenon. Nevertheless, open innovation has no doubt opened up the eyes and ears of more technology managers and innovation scholars for the potential benefits of combining complementary internal and external resources for R&D, production and marketing in innovation processes. (This is in no small measure thanks to Henry Chesbrough's seminal works.) At the same time certain biases have become built into the dominant conventional view of open innovation, such as having an overly emphasis on:

- > Newness, promoted by narrow nominalist literature searches (aided by Dr. Google) confined only to the new term (thus making the open innovation community paradoxically a bit closed to external ideas).
- > An inside out view of strategic options from the perspective of a focal firm, often large
- > A single focal product or service market of the firm
- > Cooperation (rather than competition)
- > A normative decree to use open innovation (as implied in Chesbrough's definition above)

The latter bias also has a certain US bias, which might derive from the need for openness in several US large companies suffering from technology protectionism and hubris from being technology and innovation leaders since the 1950s. This is a kind of "winners curse" not uncommon in innovation which has affected many non-US companies as well from time to time - Ericsson, Volvo, ABB, Philips, Siemens, Sony and others. On the other hand, open innovation is not always an option and even if so, closed innovation might be preferable (as when Ericsson successfully went on its own in developing its first computerized telephone exchange after having failed to elicit the interest of IBM for joint work on converging computer and communication technologies).

### The strategy view of open innovation

The two basic strategic questions prompted by open innovation are:

- Can and should firms make or buy R&D?
- Can and should firms keep or sell technology?

In probing these questions various strategic options present themselves for acquiring and exploiting new technologies - or in other words various strategies for inbound and outbound innovation. Figure 1 illustrates what we can refer to as the strategy view of open innovation, seen as a set of technology strategies for inbound and outbound open innovation in the case of technological innovations. The inbound and outbound strategies correspond pairwise to each other, each pair involving a similar type of contractual arrangements (for equity, part-

<sup>1</sup> In fact several such studies have been made under the auspices of IMIT.

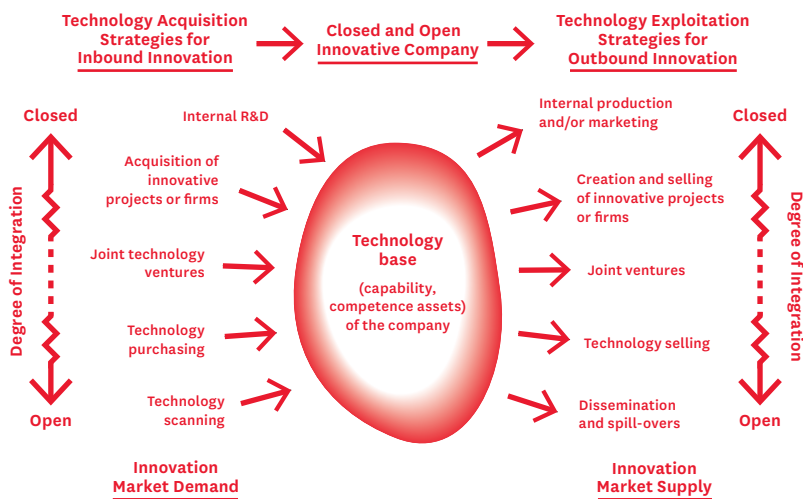


Figure 1. The strategy view of open innovation seen as a set of strategies for inbound and outbound innovation in a focal firm. Source: Adapted from Granstrand (2018).

nering, licensing, etc.). Each type of contractual arrangement represents in turn a certain degree of organisational integration, ranging from fully vertically integrated firms to fully disintegrated markets. Any inbound strategies could moreover be combined with any outbound strategy and thereby give rise to different business models, e.g. internal R&D combined with out-licensing and/or equity sales for a start-up firm.

### The market view of open innovation

Open innovation could as well be viewed as the use of a set of markets for trading different inputs to and outputs from innovation activities of firms, large and small, and other actors (universities, R&D institutes, independent inventors, government agencies etc.). These *open innovation markets*, that is markets involving some form of open innovation, are typically markets for ideas, technologies, knowledge and data such as licensing markets, equity markets, matching markets for innovation collaborations and related human resource markets. Inbound and outbound innovation strategies of various firms and other market actors collectively constitute the demand and supply side respectively of these open innovation markets. Figure 2 depicts how companies and other actors with different inbound and outbound innovation strategies can connect on different types of open innovation markets. As various open innovation markets evolve more firms and other actors are entering, transacting, cooperating and competing and whereby different market structures and whole innovation ecosystems develop. Figure 2 illustrates what we can refer to as *the market view of open innovation*, seen as a set of markets for inbound and outbound open innovation.

### Nature of open innovation markets

Each type of open innovation market then has its specific characteristics as to its buyers and sellers, demand and supply conditions, intermediaries, information sets, nature of technology transacted, business models, pricing processes, typical contractual arrangements, dynamics etc. All of these markets are to some extent interconnected complementary markets for intangibles or intellectual capital in the form of information and ideas, although often bundled with tangible resources as well and providing economies of scale and scope, including increasing returns. Most of them are forward looking in the sense that they involve future deliveries of information, e.g. in the form of targeted R&D results or software upgrades. In many cases the contractual relations are long range, e.g. in know-how or patent licensing, calling for prudence in contracting. Moreover, open innovation markets are typically preferentially two-sided in the sense that

both buyers and sellers hold preferences about each other. This is especially so for matching markets for R&D joint ventures and innovation collaborations, but also licensing markets and equity markets for acquisitions and spin-offs are usually preferentially two-sided. Open innovation markets are also often two-sided or multi-sided in the sense of offering space for an intermediary platform provider to capitalize on interconnected positive network externalities and R&D spill-overs with the help of digital technologies and AI (e.g. for contracting and payments). Open innovation markets are moreover typically thin, with small numbers of buyers and sellers, and information asymmetries and intermediaries (consultants, brokers, dealers, etc.) are common. Markets for licenses, patents and spin-offs/start-ups are moreover characterized by unit demand and/or unit supply, which creates "the winner gets all"- type of races with little time for due diligence, resulting in transactional hazards and risks for buying the pig (i.e. unproven technology) in the sack. It has also to be emphasized that open innovation markets are not stable in any equilibrium but are dynamic and amenable to market design through business modelling and innovation. Design of open innovation markets, e.g. for transactions on evolving data markets, is in turn enabled by digital technologies and AI, which can significantly lower interaction and transaction costs and capture value from positive external effects. It deserves noting that new infocom technologies in general has enabled new organisational forms of open innovation and new open innovation markets to appear, radically different from the ones in the 1970s.

In summary, these open innovation markets for intangible ideas, information, data, technology and knowledge in general are complex and dynamic but they are also different from each other and very different from conventional markets for tangible products, which are much easier to observe and contractually control than fuzzy intangibles.

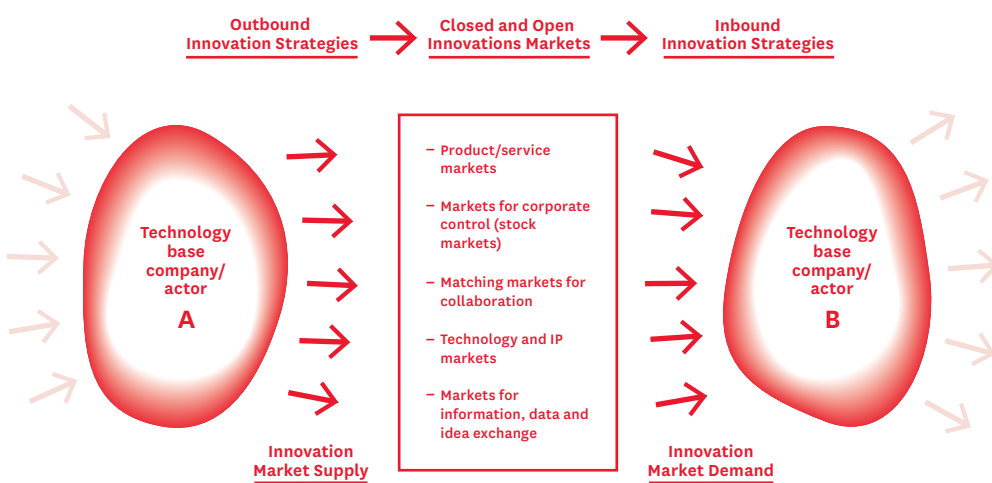
### How does the market view of open innovation complement the strategy view?

Each view has its inherent biases and pros and cons and should jointly offer balancing benefits for managers, policy-makers and scholars alike. The strategy view might better reveal and deal with internal conditions in a firm (e.g. with conflicting strategizing interests across technologies) while the market view might better reveal and deal with emergent properties (like prices, externalities and systemic effects) of an evolving market and an evolving innovation ecosystem. The market view calls for special skills in market analysis and creative flexibility in business modelling which companies following the conventional open innovation path towards a product innovation might lack. This might apply especially to large firms with their amassed resources and experience, while start-ups on the other hand have not yet entrenched themselves on such a path but have been forced to consider various open innovation markets from the outset in their scramble for resources.

The market view of open innovation not only helps innovation strategy makers but also helps innovation policy makers to shape general policies for kick-starting and sustaining well-functioning technology markets rather than overly trying to pick winners and dole out subsidies to technologies and firms.

For scholars and others trying to understand in more general terms the growing phenomenon of open innovation the market view is helpful as well. Open innovation could for instance be explained in terms of three broad factor categories:

- a) the changing nature of R&D and innovation, with increasing average



**“Thus patents help rather than hinder the use of open innovation markets.”**

Figure 2. The market view of open innovation seen as a set of markets for inbound and outbound innovation across firms and other actors. Source: Adapted from Granstrand (2020).

scale of projects and teams, increasing technological diversification with more multi-technology products and firms, and increasing technological ‘genericness’ with more general purpose technologies with multiple applications.<sup>2</sup>

b) the increasing market supply of and demand for new as well as old technologies on competitive open innovation markets, partly in fact as a result from open innovation as historically employed by companies and countries such as Japan, S.Korea and China in catching up with innovation leaders, thus providing a positive feedback in the global innovation system, leading in turn to more wide-spread processes for catching-up, forging ahead and falling back processes.

c) institutional changes, such as the change of the IP regime to a pro-patent era (with a concomitant pro-licensing era) since the 1980s, triggered in the US in no small part by the successful but threatening catch-up of Japan.<sup>3</sup>

**“The strategy view and the market view of open innovation are two sides of the same coin.”**

Intellectual property rights in general and patents in particular take on new roles on open innovation markets (see Granstrand 2018, 2020). In a forthcoming paper "Appropriation on open innovation markets: The role of patent rights for creating and capturing value from innovation" (Holgersson and Granstrand, 2021) this theme is further developed and illustrated empirically. Open innovation markets, complemented by financial markets, are found to be crucial for start-ups and patent rights then enable and induce the use of technology markets and financial markets for value capture. Without patenting possibilities the start-ups in the study would resort to more closed innovation. Thus patents help rather than hinder the use of open innovation markets.

<sup>2</sup> Generic or general-purpose digital information and communication technologies in particular pervade many products and processes and thereby contribute to their technological diversity, as do new material technologies and many other technologies on the standard list of emerging technologies (AI, robotics, 5G, IoT, 3D-printing, etc.) .

<sup>3</sup> It will be highly interesting to watch the development of the emerging geo-political "tech-war" between the US and China and whether there will be a reversal of the trend towards global open innovation at the same time as the latter might be utterly called for in light of the various global challenges ahead.

**Conclusions**

The strategy view and the market view of open innovation are two sides of the same coin.

The main argument here is not to select one over the other in innovation management and innovation studies but to use both and see what balanced insights could be gained by reversing and combining the two views into a stereo-scopic perspective with more depth.

Such a dual perspective can and should be useful for technology and innovation managers, start-up entrepreneurs, innovation policy makers and innovation scholars in advancing their understanding and use of open innovation.

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