VENDOR VIEWPOINT

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INNOVATION MANAGEMENT IN THE HEALTHCARE AND PHARMACEUTICAL INDUSTRY

Summary

I have been in the life science industry for about 20 years, and I am fortunate to work with a variety of companies and institutions ranging from academia, research institutions and start-ups to regional/global pharmaceutical companies. In my view, the pharmaceutical industry needs innovation more than ever. To promote innovation, I propose that companies in the industry establish a budget policy to allocate a certain percentage of funds to long-term innovative projects. These projects should be directly under the CEO. The industry needs an open innovation platform to close the gap of information asymmetry among players.

Current situation

The pharmaceutical industry is facing challenges. First, unmet medical needs exist in disease areas where developing drug candidates is difficult and expensive. In the past, many pharmaceutical companies generated drugs in chronic disease areas such as metabolic or infectious disease areas, and satisfaction of patients in these disease areas improved. Current unmet needs lie more in rare and difficult disease areas or personalized treatments where the development of drugs is difficult from both scientific and business perspectives with the small number of patients. This also leads to the issue of expensive drug pricing.

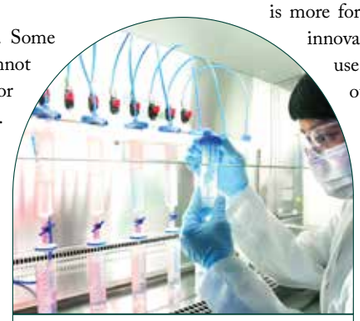
Second, to tackle these unmet medical needs, new modality is needed. Over the last two decades, the modality of pharmaceutical drugs migrated from the dominance of small molecules to the emergence of large molecules, nucleic acid drugs, cell therapies, gene therapies, regenerative medicines, and recently even smartphone apps.

Third, innovation is apparently needed in this environment. If companies develop apps to treat diseases such as central nervous system (CNS) related diseases, they need to have knowledge and capabilities of IT, while, in the past, this was not necessary. Also, if companies collect patients' data directly from individuals, they need data scientists and IT infrastructures. Furthermore, the boundaries come to overlap between medical treatment and pharmaceutical drugs. Thus there is need for innovation in the industry.

Challenges for innovation

During the course of my business at Gemseki to support licensing and partnering in the industry to generate innovation, I hear much about the difficulties of innovation management at pharmaceutical companies.

One difficulty is risk acceptance level. Some companies cannot take many risks, so they cannot buy or in-license early-stage assets and look for only late-stage assets with proven human data. This also applies to internal projects. These companies only give a good amount of funds to very promising research and not necessarily to innovative projects. I understand the result-oriented culture, but if they maintain this strategy, innovation will not be realized. This will result in the loss of competition. The level of risk acceptance varies depending on the stage of each company. If the company is a start-up, it might take risks and grow. But if the company is well-established and needs to constantly generate results for shareholders, it might have a tendency to avert risks.



> We create a bridge between a company that wants to derive and publish its own drug discovery assets and a company that wants to take over and develop it

Second, we don't know how to evaluate innovations. Even if we know the importance of innovation in theory, how can we manage and monitor innovative projects? We are used to evaluating projects using net present value (NPV) or internal rate or return (IRR). These evaluation methods can compare risk-adjusted returns among projects. But how can we use these methods when projects are innovative and it is difficult to predict cash flow? When companies try to manage projects, they tend to select good NPV projects. This is a natural selection based on financial management processes. Also if the company has success in the current pipelines, it faces difficulties to promote competing assets, even though they are innovative ones, to protect current revenue lines and avoid cannibalization.

Third, the barrier to entry in the life science industry is high due to its scientific nature, closed community nature and rigorous regulations. This situation creates huge information asymmetry between players in the industry and ones outside of it. Thus, players in the different industries cannot enter the industry easily, and less diversified competitions have continued for a long time. Further, information asymmetry also lies between small biotech and global pharma in the industry, and more open innovation has been desired to get different perspectives and capabilities from other industry players.

Solutions / Suggestions

To address these challenges, I would like to propose the following to the industry. My suggestions are based on the late Professor Clayton Christensen's theory of "disruptive innovation". This theory can be applied in the life science industry.

First, pharmaceutical companies manage projects as a portfolio, and need to allocate a certain portion, such as 10-20%, of the budget to innovative projects, which are not necessarily promising projects in terms of traditional NPV or IRR. This is more for long-term investment, expecting future innovation. Google has allowed employees to use 20% of their working hours for projects outside of current job functions. This system contributed to the innovation at Google. It can also be explained by the portfolio management theory in corporate finance. It is proven in corporate finance theory that creating a diversified portfolio will likely have a better return. So creating diversified project portfolios enables companies to have better risk-adjusted returns. Companies need to establish the policy of budget allocation to innovative projects. Without such policy, companies continue to allocate their budgets to high NPV projects as we already considered. If you create a portfolio of diversified assets, the portfolio has a better return for its risk compared to each single asset investment.

Second, innovative projects should be directly reporting to the CEO, the top of the company. Sometimes innovative projects conflict with existing sections by disrupting them. If that is the case, these innovations cannot be materialized without the CEO's support. As an organization, it is better to disrupt from within rather than being disputed by competitors.

Third, the industry needs a more open platform to exchange ideas and to close the gap of information asymmetry. Linux was made as an open source operation system for computers, and due to its openness, many systems have been made based on Linux. Linux itself has been improved significantly as many participated, modified and made corrections. We might think that it is risky to disclose something to others, but history tells that if we disclose something in an appropriate way, we can innovate. Our company, Gemseki, provides an open platform "Drug Candidate Marketplace" (gemseki.com/en/drugcandidatemarket) to facilitate open innovation. This is our move to contribute to the industry to promote innovation at this critical time.