Medicinal and Pharmaceutical Research through Open Innovation

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Abstract

Over the past ten years, open innovation has progressively increased in the fields of medicine and pharmaceutical research. However, there hasn't been much research done on how well the published literature performs in terms of having an impact on science or garnering attention on social media. By using bibliometric studies, the most prolific writers, organisations, nations, journals, study fields, and recurrent terms were found in the body of literature on open innovation. Citation-related and Altmetric data were assessed by gaining access to the Web of Science Core Collection and Altmetric electronic databases. Public-private partnerships and a number of recently released prospective innovative medications were found in the articles that were analysed. The primary literature producers came from North America and Europe. The majority of research results were published in publications with an emphasis on business, economics, pharmacology, and pharmacy, as well as engineering. Many pharmaceutical and biotechnology firms contributed to the papers under analysis, with industry pieces having lower mean citation counts and less social media engagement (Altmetric score). Collaborations in research, financial support, and the sharing of knowledge and ideas were all facilitated through public-private partnerships. In conclusion, open innovation may be a potent technique to benefit the involved industry players and hasten the creation of products and solutions for the improvement of human health.

Introduction

Companies rely on innovation to grow and maintain their competitiveness in the face of rapidly changing sociological, scientific, and technical environments. The industry has historically used specialised research and development units as internal innovation generators. The drawbacks of this strategy, though, are that on the one hand, a lot of potentially valuable innovation is constantly being generated in parallel outside of companies, and on the other hand, internally generated innovation isn't always capable of being turned into profitable products or services for the company. Consequently, there has been a paradigm shift toward open innovation recently, a strategy that accepts both traditional internal creativity and innovation created by third parties). Open innovation as Chesbrough defines it based on purposefully managed knowledge flows across organisational boundaries, employing financial and nonfinancial methods consistent with the organization's economic strategy. According to Bogers (2014), ideas, technology, and research and development can all be included in the innovation that comes from outside sources.

In the context of open innovation, businesses have shifted from seeking to safeguard their intellectual property to collaborating with academia, the public, and other businesses. The so-called "high-technology" businesses in the fields of information technology, computers, and medicines were early adopters of the open innovation approach. Beyond these early adopters, additional medically significant industrial sectors that quickly adopted the open innovation concept include those in the fields of medical devices, chemicals, and bioscience tools and services. Depending Three separate open innovation processes have been identified based on the direction of new knowledge migration The third process, known as "coupled," combines the inbound and outbound processes by forming alliances with complementary external parties. The outside-in (inbound) process entails integrating internal knowledge of an organisation with knowledge obtained from external sources. The inside-out (outbound) process entails generating profits for the organisation by transferring internally generated knowledge or intellectual property to external parties). The most often used strategy in this industry, according to an analysis of the literature on open innovation in healthcare, was open inbound innovation.

Open innovation varies in pharmaceutical businesses depending on alliances, incentives, and aims According to their particular strategy, pharmaceutical businesses were allocated to one of four groups by Schuhmacher et al. (2013): knowledge producer, knowledge translator, knowledge integrator, and knowledge leverage. The creation of Eli Lilly's Open Innovation Drug Discovery initiative in 2009 was a result of the company's long history of collaboration, which is a notable example from the pharmaceutical sector.

By performing a full-scale bibliometric analysis, an approach that has demonstrated its value in the quantitative characterization of various outputs of the scientific literature published in other biomedical research areas, our aim in this work is to gain new insights into open innovation in medical and pharmaceutical research. A comprehensive bibliometric analysis of this scope might provide data on important institutions, leading researchers in the field, the impacts of research (as measured by citation counts), and the main research themes and trends.

Conclusion

Open innovation in medical and pharmaceutical research started to appear in the literature in the middle of the 2000s, and the majority of the research was conducted in North America and Europe, with Asia lagging behind. This was discovered by studying 384 published research articles in the existing academic literature. In addition to receiving more social media attention, publications with writers connected to biotechnology or pharmaceutical businesses had a higher mean citation count than articles without industry ties. The publications under review proposed several public-private collaborations that addressed sharing of intellectual property, providing financial and professional help, and opening up channels to facilitate simpler communication. It was discovered that the pharmaceutical/pharmacology industry is a thriving one that supports open innovation and has important medical implications. But taking into account the long history of open innovation in the information sector. Consequently, it is reasonable to anticipate that firms working at the intersection of information technology and medicine will use open innovation tactics more frequently in the future (e.g., in the area of digital health technologies). To take advantage of the huge opportunities that open innovation presents, all concerned parties must be flexible and enthusiastic about new forms of collaboration, while never losing sight of the need to create goods and solutions that will improve human health.

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