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Open Source Marketing Strategy of AI Companies from the Perspective of the Knowledge Gap Hypothesis Research--On the Case of DeepSeek

Ling Xin

School of Arts & Communication, Beijing Normal University, Beijing, China
13963963587@163.com

Abstract: The open source strategy publicly discloses core code and technology, reducing the threshold for accessing resources and promoting fair development in exploring cutting-edge technology fields such as AI, thus bridging the intelligence divide. It means there is a strong link between it and the knowledge gap hypothesis. The open source strategy of AI companies is both a technology sharing behaviour and a marketing method, and changes in the company's marketing strategy reflect the transformative commercialisation trend in the field of AI. This paper explores DeepSeek's open source strategy from the perspective of the Knowledge Gap Hypothesis, and summarizes the impacts on different subjects and provides an outlook on the possibilities of future development. It is found that open source strategy markedly narrows the gap within those using DeepSeek. Additionally, both advantages and potential challenges exist for the company and even the whole society, and the shifts will in turn affect the company's future development strategies.

Keywords: Knowledge Gap Hypothesis, Open Source, DeepSeek, Marketing Strategies, AI

1. Introduction

Knowledge Gap Hypothesis studies the gap in knowledge access among different learners, while the open source strategy makes technical knowledge accessible to all learners, which has a close connection with the Knowledge Gap Hypothesis. Therefore, it is feasible and thought-provoking to use the Knowledge Gap Hypothesis to explore open-source strategy. The open source strategy is both a technology sharing behaviour and a marketing method. Through open source, the company's influence and brand reputation can be expanded, thus attracting more collaborators and consumers. Therefore, many AI companies are adopting the open source strategy. The high degree of innovation in the field of AI requires strict technical confidentiality and intellectual property protection, but now many AI companies use open source strategies to voluntarily disclose technology. Behind this change is a reflection of the industry's shifting focus, with the path to commercialisation of science and technology an increasingly important theme.

Many researchers have studied the role of open source strategies for social development. For example, Li Xiaohua, et al. argued that open source strategies are likely to trigger digital transformation and even technological revolution, as well as to promote global open collaboration and promote the regulation of global governance [1]. In addition, Liu Yihe held that DeepSeek's open source model has largely influenced the AI market and led to cooperation between DeepSeek and

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many big platforms, pointing out that the open source model will make the choices of enterprises more diversified [2]. However, there are few attempts to relate open source strategy to communication theories such as the knowledge gap hypothesis from the perspective of focusing on a specific enterprise.

This paper explores DeepSeek's open source strategy from the perspective of the Knowledge Gap Hypothesis, hoping that it can be used as a reference for the formulation of relevant specific market strategies by different companies in the future, and be able to forecast future enterprise and market developments based on current strategies.

2. The Knowledge Gap Hypothesis

Communication and marketing are closely related. Therefore, it is highly feasible to use the communication perspective to study marketing cases. The Knowledge Gap Hypothesis a classic communication theory, states that since those with high socio-economic status usually have faster access to information than those with low socio-economic status. The knowledge gap between the two tends to grow as more information is disseminated through the mainstream media [3].

According to the Theory, if what is made public by open source strategies is viewed as information, individuals with higher socio-economic status will have easier access to these information, thus widening the knowledge gap. However, relevant data suggests that AI technology progress has a greater positive impact on lower tiers of the population than on higher ones. Therefore, AI is more democratized in terms of access, which in turn narrows the digital division [4]. For example, ShakkedNoy finds that generative AI reduces inequality among workers by allowing low-capacity workers to benefit more to compress the productivity distribution [4]. Additionally, people have a low threshold of access to information and are more open and equal in terms of accessibility. Hence, AI technologies equally open to everyone can significantly decrease the divides in aspects such as resources and skills, resulting in narrowing the knowledge gap.

Taken together, in the case of DeepSeek, the open source strategy may lead to widening the gap between those who are unwilling or unable to use the DeepSeek technology and those who are actively learning and using it. However, it markedly narrows the gap within those using DeepSeek, thus increasing competition, fostering cooperation, and driving technological innovation and social progress.

In conclusion, for individuals, it is important to strive to learn with an open mind, even though evaluating the dangers and hazards is critical when new technologies develop. When businesses implement an open source strategy, it's critical to be able to predict which gaps will be closed, what effects will ensue, and whether these will be more advantageous to the business than otherwise.

3. Case Study: DeepSeek's Open Source Strategy

3.1. The Motivation of DeepSeek's Open Source Strategy

DeepSeek, founded in 2016 by Phantom Square Quantitative, emerges as an innovative technology company during a period of rapid growth and intense competition in the AI sector. In recent years, the global demand for AI savings has grown rapidly, with a broad market and bright prospects for development. As of June 2024, the user base of generative AI products in China has reached 230 million people [5]. Furthermore, the subject of artificial intelligence is still in its infancy, which presents more risks and uncertainties but also creates opportunities for new businesses to innovate and fight for a wide market. Furthermore, there are still ethical and technical concerns that could produce a crisis in the development of the AI business. Thus, new small enterprises need to highlight their competitive advantages and find a new way forward.

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DeepSeek's technology development capabilities are strong, and its products have the significant advantages of low cost and high performance. In conjunction with the adoption of the open source strategy, it can occupy a larger market faster, give full play to the cost-effective advantage, and build up a user base and partner base. As a new company, DeepSeek is in great need to enhance the brand's influence and expand its popularity in the worldwide. Open source with a publicity effect is conducive to a good reputation.

3.2. The Implementation of DeepSeek's Open Source Strategy

DeepSeek has a fully open source feature. For instance, in 2025, DeepSeek announced its Open Source Week programme, in which it would open source new content every day from 24-28 February, with a total of five codebases, including FlashMLA, DeepEP, and DeepGEMM, which are the 'core' of DeepSeek [6]. DeepSeek open-sources models such as R1 based on the MIT protocol, allowing developers to freely use and modify the quotient and use without additional licences, and exposes the model inference process [7]. Additionally, DeepSeek adheres to the philosophy of "big and efficient" in its algorithmic architecture: expanding model capacity through Mixture of Experts (MoE), leveraging Multi-Layer Attention (MLA) and architectural optimisations to improve efficiency, and keeping the architecture open and extensible so that it becomes an AI base that can evolve and adapt to multi-tasking [8]. This lays the technical foundation for its continuous and sustained optimisation through its open source strategy.

3.3. The Advantages and Potential Challenges

In general, the benefits of open source to DeepSeek outweigh the challenges. One of the reasons DeepSeek doesn't have a trigger placebo effect is that the open source policy has gained people's trust. In addition, the open source policy has quickly generated a lot of attention and use, and has further broadened the field of use of the product through cooperation with major enterprises and various fields. DeepSeek reportedly finished growing 100 million users in just seven days, became the fastest AI app, and surpassed 30 million daily active users on 1 February 2025 [7]. It also helps the company to collect data and enhance its brand presence. Additionally, users can download and deploy the model themselves to redevelop and study the model, allowing developers worldwide to participate in the improvement and optimisation of the model [7]. This makes DeepSeek develop faster and better adapt to people's needs.

However, open source also faces challenges.Unconstrained model fine-tuning may undermine the alignment and security properties of the model. DeepSeek has difficulty controlling model usage, and there may be a risk of inappropriate use, which in turn may raise regulatory or security concerns [9]. Besides, open source gives competitors and potential consumers free access to the model, directly harming the commercial interests of the enterprise [9]. Finally, the pressure on businesses to survive may be increased by their incapacity to regulate the dissemination of code and to produce steady, long-term revenue directly from technical innovations.

4. Universal Application Value of Open Source Strategy

4.1. The Benefits and Drawbacks for Companies

First, open source is a kind of proof. Making the core technology public and having the courage to allow everyone to simulate and test it can prove that the quality of products are excellent and can stand the examination. Open source models may be considered more trustworthy due to the availability of their training data, allowing everyone to clearly see the complexity of the code and the algorithm running process, which can demonstrate that the company is technologically superior and

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has increased development potential [10]. Such proof is conducive to the promotion of the company's products and the facilitation of co-operation with various enterprises.

Second, open source is a form of advocacy. It is relatively rare for existing AI companies to fully adopt an open source strategy, and the spirit of sharing and selflessness directly demonstrated by this strategy is recognised and praised by most people. Therefore, with the publicity of media coverage, the open source strategy can effectively enhance the company's visibility, influence and reputation. Thus, it is favourable to brand building.

Third, open source is a collection. Through open source, more people will use the company's products, and there will be more diversified fields and methods of application, facilitating the company's access to more quantitative and diversified data. The data will have a really positive impact on the company's further technological innovations.

Fourth, open source is a sort of giving. Open source means releasing the results of a company's hard work and making them readily available to other individuals or enterprises. It suggests that a company can no longer obtain various benefits by monopolising the technology and that it even needs to be alert to the fact that other companies may use its publicly available technology to pose a threat to the company. Open source itself is an act of ceding benefits.

Fifth, open source is a type of competition. Open source is to attract more customers and partners from competitors, which can intensify market competition. In addition, the disclosure of core technologies makes competition more intense by narrowing the knowledge gap between similar companies, allowing small firms to obtain learning resources to catch up, and large enterprises to feel a sense of crisis and thus accelerate innovation.

4.2. The Impact on the Overall Development of Society

The core code and algorithms of the Open Source Model are transparent, making it possible for developers to participate and work together to optimise, improve and extend it, making it better suited to different tasks and scenes [11]. Therefore, the open source strategy can largely promote the AI digital transformation of many industries, and people are also exploring more possibilities of AI product application in the practical use of different scenarios, promoting convergence and progress of industry and high-quality economic development.

In a strict closed source strategy, the monopolisation of technology and the unequal allocation of innovation resources often lead to the exclusion of developing countries from the circle of global technological innovation, while developed countries maintain their technological hegemony and also restrict their own research possibilities [10]. The open-source strategy helps break down technological barriers and knowledge gaps, allowing a fairer and fuller use of innovation resources, thereby enhancing advancement of the whole human society.

5. Future Development Strategies

Analyzing the pros and cons of open source strategy shows that companies that adopt this strategy basically meet the following two conditions. Primarily, the company has sufficient confidence in its own scientific and technological strength to continue to innovate and develop. The second is that the company has a high demand for rapid development of the product market and open up brand reputation. So it can be predicted that in the near future DeepSeek will still stick to the open source strategy.

However, in order to protect core technology, many large AI companies have changed from open source strategy to closed source strategy after a certain stage of development, such as OpenAI, Baidu. Also, some companies are adopting a hybrid strategy such as Google, Smart Spectrum. Due to the absolute preciousness of advanced technology and the influence of the general ecological atmosphere

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of the AI market, very few companies can always adhere to open source, which raises the question whether DeepSeek can withstand the pressure and insist on open source.

In terms of technological innovation, DeepSeek is not far ahead of its competitors. Instead, the company wants to expand its user base by assisting in the development of a robust technological ecosystem that encourages the broad adoption of AI products, rather than destroying its rivals in this regard. Therefore, open source is beneficial to DeepSeek's development in the long run.

Considering that the most crucial feature of DeepSeek is low cost and high performance, it is speculated that the market position of DeepSeek may be the following. DeepSeek provides incredibly cost-effective AGI services for clients who wish to use high-performance AI technology but don't want to spend a lot of money. The services are very affordable, and the majority of the features can even be used in interviews. Additionally, the performance is excellent, with high technical guarantees and innovative breakthroughs. This positioning and the adoption of the firm's open source policy are mutually explanatory. Positioning clarifies the expectation of attracting consumers, so the open source policy is adopted to promote it; the adoption of the open source policy discloses the technology, but does not harm the core interests of the firm.

What's more, DeepSeek's open source strategy has largely changed the trend of the AI market. The impact that the open-sourcing of an extremely strong model can have on the competitive landscape of an entire industry is significant [12]. After DeepSeek released its open source big model, many manufacturers began to reflect on their business models, and more and more companies began to follow suit by releasing open source models. For example, at the end of January 2025, Open AI CEO Sam Altman said that open source is not a current priority for the company, but he believes that there is a strong need to consider a new open source strategy [10]. At the World Government Summit in Dubai in February 2025, Baidu announced that it will officially open source the next-generation Wenshin Big Model from 30 June 2025 onwards [12]. In such an open source market atmosphere, DeepSeek is likely to stay open source.

6. Conclusion

Based on the communication perspective of the Knowing Gap Hypothesis, this paper analyses the specific case of the open source strategy adopted by DeepSeek, summarises the positive and negative impacts of the open source strategy on different subjects, and provides an outlook on the possibilities of future development after open source. This paper can be a reference for companies struggling with whether to adopt an open source strategy or not, and it also provides communication ideas for research in the field of AI.

However, there is still room for improvement in this study. For instance, this study did not conduct sufficient research and data analysis to support the resulting theory. Additionally, there is still a need for careful validation and analysis of whether communication theories, such as the Knowledge Gap Hypothesis, which are supposed to be used in the media context, can be applied to the field of marketing.

Looking ahead to future developments and research directions in open source marketing strategies and the AI field as a whole. Cross-field and interdisciplinary integration will be an inevitable trend, because open source advances the popularity of AI in various fields, and AI makes all kinds of fusion possible.

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