Managing Artificial Intelligence Report

Analysis of AI Implementation in Marketing

Haozhe TANG

Professor: Nahla Ben Amor

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1. Research-Strategy-Action Cycle & Three-Stage Framework for Strategic Marketing Planning

1.1 Brief-introduction

In March 2020, Huang and Rust proposed the marketing research-strategy-action cycle, which is an improved cycle based on the "plan-do-check-act cycle" proposed by Deming in 1982. (Deming, 1982)

Based on the cycle, they also suggested a three-stage strategic planning framework. This framework aims to acquire enough marketing information, including utilising AI to do research, to plan strategies and to give actions with the help of mechanical AI, thinking AI or feeling AI.

In the following figure, it illustrates the Marketing Research-Strategy-Action cycle. In the first stage, AI can help companies to know their potential/existing clients well, by obtaining the data related to customer information and behaviours, analysing the current market trend and having a better understanding of the needs of customers. In the second stage, strategies are made by processes done by AI. Providing customers with a specific position will evidently raise their willingness to purchase. In the last stage, providing personalised service/product could be the main idea to attract customers' eyeballs.

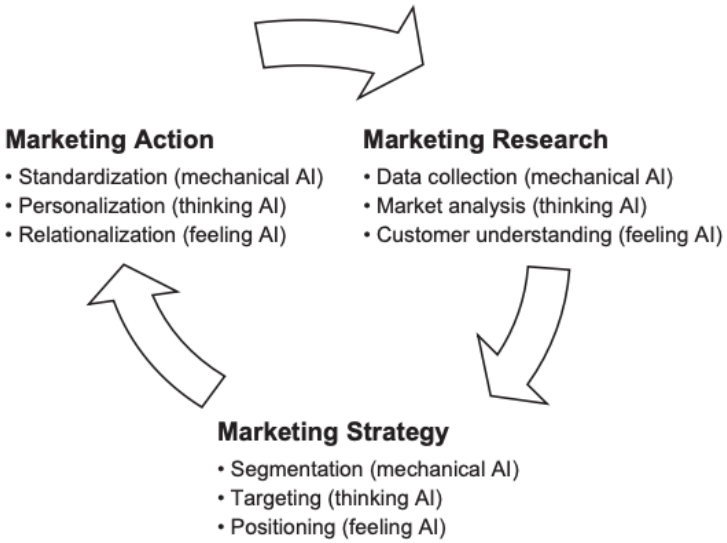

Fig.1 Research-Strategy-Action Cycle

1.2 Illustration of the framework

In those three stages, mechanical, thinking and feeling AI work respectively to improve the performance of marketing.

According to the paper of Huang and Rust, **Mechanical AI** accomplishes the automation of normal and repetitive tasks. In companies, it is always being used to do basic and standard tasks like packaging, delivery or information consulting. (Colgate, E., Wannasuphoprasit, W., & Peshkin, M., 1996) We all expect a standardised and reliable output as the result of applying mechanical AI techniques.

Besides, **Thinking AI** helps humans to discover the correlations and modes among datasets. That is to say, these techniques can provide us with personalised marketing campaigns and any related marketing activities or functions will benefit from it. For instance, the recommender system of Netflix about films and Spotify for personalised music lists fits the personal needs or consumers.

Finally, **Feeling AI** is made to understand the emotions of human beings and to do dual-direction interactions. Therefore, marketing activities or functions that need interactions and communications should consider utilising Feeling AI techniques. Such as dealing with customer satisfaction, customer complaints issues in the customer service field.

2. Case Study: Application of AI for Amazon based on the methodology

2.1 Background

Based on the extraordinary group management, customer-centric company values and proper implementation of AI technologies in business, Amazon has become the biggest e-commerce platform around the world. According to the figure provided by ecommerceDB, with astonishment, I found that around 25% of the revenue for E-commerce sales happened on the platform of Amazon. Followed by another giant company: Apple, which only has 10%-15% of market share. (ecommerceDB, 2022)

Speaking of Amazon e-commerce platform, everyone will link this company with the core technique they use in their shopping app - the recommender system. Undoubtedly, it affects the success of Amazon a lot, but without the combined performance of other algorithms and processes on the marketing strategies' making, this company can not achieve at the first place worldwide.

2.2 Marketing Research Stage

The first step Amazon takes is to know their customers well, the trick is the concrete data, which aids in avoiding ineffective effort and it helps the company to stay focused on real opportunities. (Tycoonstory, 2022)

Thanks to its extensive customer base and the fact that Amazon is dedicated to tracking customer behaviour on its platform. These data are used to tap into customer's preferences, their buying habits, also pain points and future purchasing trends. (Owens, 2023)

Based on the previous steps, the Thinking AI helps Amazon to analyse the current market and then try to introduce new products to meet the requirements of potential consumers. According to the customer data-based analysis, Amazon can also establish different marketing sectors around the world by identifying and targeting new markets.

2.3 Marketing Strategy Stage

With the results getting from the marketing research stage, Amazon strives to drive its advertising and marketing efforts. Mostly, in terms of segmentation, Amazon did two things to define users and items: firstly, Amazon segments users into categories mainly according to their purchasing behaviours. It also depends on demographic information, geographic information and whether they are Amazon Prime users or not etc. In other words, after analysing this information, they give one (multiple) tags to the customer. Then, they use customer data to understand which products and services are most popular among different customer segments, so they do segmentation to items also. Normally it is only a rough process, so it is simple and it needs further process. (Owens, 2023)

After the segmentation, the information will be used to tailor its advertising and marketing efforts accordingly. Then, products or services with similar/same tags will be targeted on the user with a high similarity or a high possibility to love the recommendation. Based on the segmentation step, after applying relevant techniques and analysis methods on the existing data, users and items can be further divided into groups.

Finally, based on the concept of "to be Earth's most customer-centric company" Amazon offers a wide selection of products with competitive prices, this can also be adjusted flexibly related to the comments and ratings that customers gave to products. So with the searching and shopping history of users, the best options will always be received by customers, which will highly prompt the willingness of purchasing.

2.4 Marketing Action Stage

As the mentioned in article of Data4Amazon website, Amazon will evaluate the technical specifications, measurements and units of each product to ensure that they are in compliance with a uniform set of standards. The Mechanical AI systems will again, analyse the tags given to products in the previous stage and make sure that products are classified accurately. (Data4Amazon, 2023)

After the recheck of products' tags, customers will be recommended with the accurate items that might have the highest possibilities to be bought in the future. And these products are always shown on the home page of each customer, letting users to find them at the first glance. For Amazon, not only on the platform, customers will also receive personalised emails. These email marketings will be tailored based on the customer's purchase history, preferences and browsing behaviours. Besides, specific Machine Learning models are used in the process of providing personalisation services to customers and a voice shopping tool: Alexa is implemented to enhance the customer shopping experience.

At last, Amazon builds a strong relationship with customers: they provide personalised service, establish customer loyalty programs, and also do well in customer service and in giving product feedback and reviews.

3. Effectiveness Evaluation of the implementation of AI for Amazon Business

3.1 Targeting

Amazon has access to vast amounts of customer data, like browsing and searching history, purchase behaviour and personal information (such as demographic and geographical information). Then the AI-powered advanced algorithms can analyse these data to discover certain customer patterns and preferences, which allow Amazon to target customers with personalised and tailored recommendations.

Exact targeting can decrease the difficulty for Amazon to provide effective recommendations while motivating the willingness of customers to buy new products.

3.2 Positioning

AWS (Amazon Web Service), a strong platform Amazon provides various services and tools for national departments, companies and individuals. In between, it has a lot of AI and Machine Learning services and tools that can be used in content creating and customer positioning. Also, Amazon itself uses this function to define, segment and position their customers. (Nguyen, 2023)

Back to the e-commerce platform, Amazon can adjust its positioning strategy timely and flexibly and give responses swiftly to evolving market demands. Also, with AI-driven sentiment analysis, Amazon can clearly understand how customers perceive its brand and products. With this information, the company

can sensitively capture customers' pain points and it allows Amazon to refine their positioning and messaging to align with customer expectations effectively.

3.3 Product Development

Speaking of product development, two main technologies related to AI are used in the Amazon platform: Alexa and Machine Learning (NLP) algorithms in sentiment analysis.

Firstly, Alexa can be activated to work as a vocal shopping assistant, the robot can collect the like and dislike product lists of customers, which will be the data to predict the market trends and improvements of current products available. (Jarrell, 2021)

Besides, Machine Learning algorithms can analyse customer feedback, reviews, and other related data to identify potential product improvements or new product release ideas. Some products should be taken off from the platform and some products need to attract more brands - these are all the decisions that can be determined with the help of AI and it assists to manage products on the platform.

3.4 Price (Cost)

Amazon has a global fulfilment system. Bad management on such a large-scale program can be costly. However, such a huge size delivery service is complicated being managed and controlled by human beings 100%. So, AI stands out to provide sophisticated algorithms to design the fastest and cheapest path from its broad logistical network that includes warehouses, distribution centres and delivery systems.

On another side, AI-driven pricing algorithms continuously monitor market conditions, competitor prices and customer behaviours to optimise product prices in real-time. With the help of these algorithms, Amazon can maximise revenue while maintaining customer trust and loyalty.

3.5 Customer Engagement

According to the article by Benj Cohen, Amazon's AI features help to decrease the bounce rate by 10-15% and it increases customer engagement by more than 40%. Furthermore, Amazon's chatbots and virtual assistants like Alexa, all of them utilise Natural Language Processing (NLP) and Machine Learning techniques to understand and respond to customer queries effectively. As 24/7 customer support services, they improve the overall customer satisfaction. (Cohen, 2020)

4. Potential Ethical Considerations and Risk Management Strategies of AI Using

4.1 Existed ethical problems and potential bias of AI Using

The possibility of discrimination and prejudice is one of the most serious ethical problems. According to Buolamwini and Gebru's paper, the historical data used to train AI computers may include biases perpetuating prejudice. This problem will lead to inequality with some specific individuals or groups of people and cause suffering to them. (Buolamwini, J., & Gebru, T., 2018) AI programs can also teach themselves what is preferable by absorbing biases from other sources. In particular, if AI is programmed with some biases naturally, the program can teach itself to be racial and gender biassed and it will affect the customer experience seriously and badly.

Then it is the privacy and data protection problem. If the data of customers were used by the company in the areas out of what they expected, it will be harmful to some extent and it has the possibility of losing those vulnerable customers. (4LegalLeads, 2020)

With the development of generative AI, some AI systems started to create fake contents, which could be harmful to both business and computers. In social media, automated accounts and bots work to spread disinformation, sometimes engage in hate speech and harassment, and even judge some beliefs or quotes which formed years ago and have their own environment. (4LegalLeads, 2020)

4.2 Risk Management Methods of AI Using

1. **Follow the local data protection regulations and do not cheat others' IP.** While using AI in marketing, always making sure that all the information collected from users is following the regulations (like GDPR) strictly and also respecting others' intellectual properties; (Buolamwini, J., & Gebru, T., 2018)
2. **Improve data protection measurements.** Enhancing privacy protection technologies such as adding noises inside the data to increase the difficulty for hackers to decode and let all the data collection process be transparent;
3. **AI bias detection and mitigation.** While utilising AI to do marketing, companies should deploy AI tools that can detect and bias what happened during the daily use and minimise the discrimination;
4. **Efficient algorithms to detect disinformation.** Companies have to create new algorithms that can effectively recognise fake news created by the AI bots, also the remarks AI give to judge something sensitive. Then, report to the company quickly and give a reaction to the remark.

5. Conclusion

Based on the paper written by Huang and Rust, the three stage framework works effectively while analysing the marketing campaign of a company. In this report, we used the real case of Amazon, analysing its managing concepts and methods following the three stage framework structure. The perfection of product improvement, CRM, marketing operation contribute to its success and these ideas could also be applied in other companies or other marketing fields.

Finally, we listed some risks including potential ethical problems and bias while running AI in marketing. Responding to these issues, we also proposed methods to manage and it might work in real-life marketing bias and risk-based problems.

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