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Machine Learning in Clinical Research: Transforming the Future of Evidence Generation

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Introduction

Many parts of society, including marketing, have yet to be significantly impacted by Artificial Intelligence (AI) and Machine Learning (ML). Regardless of this flaw, ML has a lot of potential benefits, including the capacity to apply more robust methodologies for generalizing scientific findings. In order to overcome this deficit, this monograph has four goals. To begin, present a marketing overview of Machine Learning (ML), including an examination of the various types (supervised, unsupervised, and reinforcement learning) and algorithms, as well as the significance of ML to marketing and the whole process. Second, we'll look at two different ML learning strategies for marketers: Bottom-up (which requires a strong background in general math and calculus, statistics, and programming languages) and top-down (which focuses on using ML algorithms to improve explanations and/or predictions given within the researcher's domain of knowledge). The third goal is to examine machine learning applications that have been published in prestigious marketing and management journals, books, and book chapters, as well as recent working papers on a few intriguing marketing research subfields. Finally, the monograph's purpose is to discuss the potential impact of machine learning trends and future advances on the marketing industry.

Next a brief introduction, the following section provides an overview of machine learning, including a discussion of the main types, methodologies, and marketing applications. Following that, two different learning approaches for management/marketing researchers interested in machine learning are provided, followed by a typical machine learning workflow. A descriptive analysis of machine learning applications published in top-tier marketing and management journals, books, book chapters, and recent working papers that study a few of the most promising marketing research sub-fields follows. The author then examines how machine learning trends and future advancements may impact the marketing profession. The final section outlines the contributions, limitations, and recommendations for further research.

Artificial Intelligence

Economic frictions, such as information asymmetries, and economic pressures, such as economies of size and scope, lead to the establishment of financial intermediaries. Forces also shape these squabbles and market structure. While technological developments are nothing new in the world, digital innovation has resulted in major increases in connectivity in the financial sector. Improvements have decreased transaction costs and brought up new business prospects in terms of processing power and cost, as well as freshly generated and usable data. As technology has improved, so has the flow of information, resulting in new entrants and models. With lower transaction costs disaggregated, financial services could be produced more inexpensively. Specialized players have unbundled financial services, allowing customers to find and assemble their chosen product suites. Economic forces, on the other hand, are still important in the age of digital production. Economies of scale and breadth, as well as network effects help several aspects of financial services output, including customer acquisition, finance, compliance operations, data, and capital (including trust capital). Consumer search and assembly costs remain high, despite technology developments. These variables, which support re-bundling, benefit large multi-product suppliers, such as technology (big tech) businesses entering financial services from adjacent industries. Financial services digital transition poses a plethora of policy concerns concerning competitiveness, regulatory limitations, and ensuring a level playing field. In terms of rivalry, concentration, and market composition, a "barbell" result with a few large suppliers and numerous specialized competitors is one possibility. Authorities must interact across financial regulation, competition, and industry regulatory bodies to handle trade-offs between stability and integrity, competitiveness and efficiency and consumer protection and privacy.

During the three industrial revolutions, technology has aided enormous changes in society. When there is value, such as economic advantage, capital is invested in a capitalist system. We want to see if a company's stock price varies over time as the technology's life cycle continues. Specifically, companies that deal with augmented reality and are listed on Korea's KOSDAQ market were vetted. We divided these companies into categories depending on the technology that make up augmented reality. We used the event research method to compare stock returns to a benchmark. As a result, at the peak of inflated expectation stage, portfolios of all companies adopting augmented reality outperform the benchmark. It's more difficult to tell whether a result made using one of the detailed technologies that make up augmented reality is better or worse than the benchmark. During the "Trough of Disillusionment," there was no consistent pattern of Cumulative Abnormal Returns (CAR) or Buy-and-Hold Abnormal Returns (BHAR). However, in terms of average BHAR and average abnormal returns, there was a positive correlation between the total sample's portfolio and each detailed technological firm's portfolio at this point.

When centralized decision-making is in place, the most important decisions are made at the top; when suburbanized higher cognitive processes are in place, decisions are outsourced to operative employees. Another concern is that decision-making is used to help the subsidiary respond to the country's economic and political demands. These choices are sometimes largely economic in nature, focusing on topics like return on investment for international enterprises. Selections at different times are a product of cultural differences. For example, expatriate manager's performance evaluations of native workers are heavily influenced by the expatriate's cultural values. Allowing some comparative instances is

the most effective way to highlight variations in decision-making designs within the international market.