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## Continuous increasing consumer service for multi-item dual-channel retail management

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### ABSTRACT

Along with the advancement of technology and consumer expectations, online-to-offline retailing is seeking attention in the retailing industries. Online-to-offline retailing is a powerful strategy that bridges the gap between the convenience and reach of online shopping with the tangible experience and service of physical stores. Customer satisfaction and brand loyalty are basic pillars to enhance profit for the retail industry. Providing different services like repairs, exchanges, and home delivery enhances customer satisfaction and builds trust in the particular industry. In e-commerce, the importance of delivery service is emphasized, with fast and reliable delivery being a key factor in customer satisfaction. An online-to-offline retailing system for multiple items is developed in this study by considering consumer service efficiency demand. A pricing strategy that relies on the channel of distribution and the impact of advertising on consumer demand is taken into account. The manufacturer offers complimentary home delivery services for orders surpassing a specified threshold. To implement advanced technologies, a huge budget is required. To make the study realistic, a budget and space are considered. The retailing system's total profit is ultimately maximized by determining the optimal values for selling price, advertisement investment, customer care costs across various channels, ordering quantity, and investment to minimize setup costs for different items. A classical optimization approach is employed to derive a semi closed-form solution for the proposed model. Sensitivity analysis and examination of special cases are provided to demonstrate the practicality of this research. Through numerical illustrations, it is established that the profit maximization occurs when the defective rate adheres to a Chi-square distribution. Imposing budget and space restrictions leads to a 19.91% increase in system profit while offering free home delivery services boosts the profit by 15.77%.

### 1. Introduction

Developing a service strategy for an online-to-offline (O2O) retailing business with multiple products involves integrating digital and physical experiences to provide seamless customer interactions across various touchpoints (Hota et al., 2024). In O2O retail, where online and offline worlds collide, servicing plays a nuanced role in influencing customers across diverse product categories. Consumer service is really important and affects how customers shop for different products (Uzir et al., 2021). Envision someone viewing luxurious kitchen gadgets on the web. Having a one-on-one video chat before buying something helps customer make a smart choice. In the store, customer can try augmented reality to see the product features, easily order online, and pick-up the purchase in the store. On the other hand, if customer likes fashionable clothes, customer may like using self-service kiosks that suggest the size. If customer wants personalized advice, he/she can ask for help from an in-store stylist. The important thing is to understand what each product needs and provide services that fit those needs (Waßmuth et al., 2023). For instance, big furniture needs

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