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The Impact of Fulfillment Service Provision on the Operational Efficiency of Online Businesses

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Abstract

This research aims to investigate the impact and experiences of online business entrepreneurs utilizing Fulfillment services, which represents an outsourcing strategy for managing the entire back-end logistics system. The study employed a qualitative research design. Data was collected through in-depth interviews with five key entrepreneurs, and the information was analyzed using Thematic Content Analysis. The analysis revealed that the adoption of Fulfillment services introduces a complex trade-off in business operations. The primary motivations for using the service were the need for scalability and time-saving, allowing entrepreneurs to concentrate on strategic tasks such as marketing and product development. However, entrepreneurs simultaneously faced challenges, including higher variable costs and reduced flexibility in critical operational processes. Notably, while the speed of delivery improved significantly, the rate of delivery errors tended to increase during peak order periods. Consequently, Fulfillment serves as a strategic tool that genuinely enables online businesses to scale and enhances brand credibility. Nevertheless, entrepreneurs must carefully manage the risks associated with accuracy and cost control to achieve maximum operational efficiency.

Keywords: Fulfillment, E-commerce Business, Business Performance, Logistics

1. Introduction

The online business landscape is currently facing intense competition, particularly as the E-commerce market rapidly expands across platforms such as Shopee, Lazada, Amazon, and TikTok Shop. Effective management of the back-end system (logistics) and delivery is therefore a critical factor for achieving a competitive advantage. Fulfillment services manage the entire process, from order reception and inventory storage to packaging and final shipment, thereby significantly alleviating the workload for entrepreneurs. However, utilizing these services introduces additional costs, which may impact cost-effectiveness, particularly for smaller businesses with low sales volumes. Given these challenges, this research aims to concretely study the impact of using Fulfillment services on the operational efficiency of online businesses, and to propose potential solutions for the issues encountered.

1.1 Title of the 2nd level

In 2025, the online business sector in Thailand is entering an era of intense competition, necessitating significant adjustments by distributors. The current E-commerce market is increasingly complex and challenging due to the liberalization of trade via global online platforms such as Shopee, Lazada, Amazon, and TikTok Shop. To remain competitive,

entrepreneurs must adopt technology to meet fast-paced customer demands and ensure satisfaction throughout the entire process, all while navigating rising platform fees. Furthermore, dramatic shifts in consumer behavior require sellers to adapt across product, service, and, critically, delivery system efficiency. This logistical capability is a vital factor that cannot be overlooked for building a competitive advantage and sustaining market viability in the current online environment (Marketingoops and MGR Online, 2025).

Although Fulfillment services (covering warehousing and shipping management) significantly reduce the workload associated with running an online business, past operational experiences still reveal issues that impact overall operational efficiency. The use of Fulfillment services introduces additional costs, potentially leading to poor cost-effectiveness, especially for small businesses with low sales volumes. These challenges directly affect both the service quality of the fulfillment provider and the overall business performance.

Therefore, given the problems identified above, the researcher aims to study the impact and develop solutions for online businesses by investigating the effect of Fulfillment service provision on the operational efficiency of online businesses.

1.2 Research Objective

To investigate the perspectives and experiences of online business entrepreneurs regarding the utilization of Fulfillment services.

To examine the impact of using Fulfillment services on the operational efficiency of online businesses.

2. Literature review

This study focuses on analyzing the impact of using Fulfillment services on enhancing operational efficiency within online businesses. To do so, it is necessary to review the core concepts of Fulfillment, which encompass five critical steps: Receiving, Storage, Picking, Packing, and Shipping. These steps are considered the heart of e-commerce warehouse and supply chain management (ASCMSCM, 2025). Operational efficiency will be measured using key, quantifiable logistics indicators, such as Lead Time, Error Rate, Cost of Operation, and Customer Satisfaction. These metrics serve to identify weaknesses and opportunities for cost reduction (ShipScience, n.d.). While Fulfillment helps reduce the workload and frees up entrepreneurs to focus more on sales and marketing strategies (MyCloudFulfillment, 2020), the decision to adopt the service must carefully weigh the cost-effectiveness against additional expenses and the reliability of the service provider (Packhai, 2023). Therefore, the preliminary conceptual framework is designed to link the use of Fulfillment as an input factor to the resulting efficiency as an outcome, using the perspectives and experiences of entrepreneurs as qualitative data to deeply explain the actual relationship and impact. (Waiyawuththanapoom et al.2022).

3. Methodology

This study employed a Qualitative Research design utilizing a Phenomenology approach to understand the lived experiences of online business entrepreneurs regarding the use of Fulfillment services.

Key Informants (Participants) were selected using Purposive Sampling and comprised five entrepreneurs. This sample size was chosen to ensure sufficient diversity for initial qualitative analysis up to the point of Data Saturation. The defined inclusion criteria were:

1. Operating an online sales business on E-commerce platforms (e.g., Shopee, Lazada, TikTok Shop).
2. Currently using or having previously used Third-Party Fulfillment services.

The methodology utilized two main instruments: an 8 - item Personal Information Questionnaire for gathering fundamental business metrics, and In-depth Interview Guidelines (13 open-ended questions) covering Perspective/ Experience and the Impact on Operational Efficiency. The interview protocol was validated by experts for content validity.

Research Instruments

The research utilized two primary instruments for data collection from online entrepreneurs. First, an 8- item Personal Information Questionnaire gathered essential background data, including business type, operating duration, sales channels, average monthly order volume, and the specific Fulfillment provider used. Second, the In-depth Interview Guidelines comprised open-ended questions created by the researcher, divided into two main areas: Perspective and Experience (6 items) to explore motivations and challenges, and Impact on Operational Efficiency (7 items) to assess real-world outcomes against key business metrics. To ensure the rigor of this qualitative tool, the interview guidelines underwent Content Validity checking by subject matter experts.

Data Analysis

The research employed Thematic Content Analysis (TCA) with the primary objective of discovering and synthesizing the Core Themes reflecting entrepreneurs' perspectives and experiences with Fulfillment services. The procedure began with the Preparation and Organization of data via full interview transcription. The researcher then moved to Familiarization and Identification of Analytical Units (key phrases clearly answering the research questions). Subsequent steps involved Coding and Preliminary Categorization of similar data. Finally, Theme Synthesis and Verification were performed by cross-referencing the findings with the original participant quotes. This ensured the reliability of the analysis and its adherence to the principle of Trustworthiness in qualitative methodology.

Ensuring Trustworthiness

This qualitative study primarily focused on establishing Credibility and Dependability. The data used for analysis was collected through in-depth interviews, supplemented by audio recording and behavioral observation of the informants. Credibility was ensured using Member Checking, where the discovered analytical themes and results were directly confirmed with the key participants. Dependability of the research process was verified through an Expert Audit. This involved two experts independently analyzing a subset of the transcribed data according to established guidelines, and subsequently comparing their results to confirm the consistency and academic rigor of the analysis procedure.

4. Results

Qualitative data analysis from five key informants identified four essential themes regarding the impact of Fulfillment services on online businesses: Motivation for Scalability, Challenges of Variable Costs and Flexibility, Operational Trade-offs (improved speed but reduced accuracy), and Building Brand Credibility and Image.

In summary, entrepreneurs utilize Fulfillment to optimize time for marketing and resolve storage constraints. This strategic decision, however, involves a trade-off: it results in higher overall costs, particularly during periods of volatile sales, and a lack of flexibility for specialized packing. Crucially, while delivery speed significantly improves, participants noted a spike in picking errors during peak seasons. Despite these operational risks, the use of Fulfillment successfully enhances brand credibility and customer perception.

5. Conclusion

The objective of this qualitative study was to examine the impact and experiences of online entrepreneurs utilizing Fulfillment services. Based on the Thematic Content Analysis of data from five key informants, the identified results are synthesized and academically discussed as follows.

5.1 Summary of Findings Discussion

The research concludes that utilizing Fulfillment services introduces a complex impact on operational efficiency, characterized by a significant trade-off between strategic enhancement and operational constraints. The main advantage is achieving business scalability through savings in time and storage space. Conversely, entrepreneurs must contend with rising variable costs and persistent accuracy issues during peak order periods, necessitating careful risk management.

5.2 Discussion

The research findings are discussed below by linking the identified core themes to relevant academic concepts and literature.

1. Motivation for Core Business Focus

The finding that entrepreneurs utilize Fulfillment to save time and focus on marketing aligns directly with the concept of logistics outsourcing. Outsourcing non-core competencies to external specialists enables an organization to dedicate its resources to activities that generate the highest business value (Wichaidit & Tanthapanich, 2021). This confirms that Fulfillment serves as a strategic tool for effective resource and time allocation.

2. Challenges of Variable Cost and Flexibility

The observation that entrepreneurs accept higher total costs and reduced flexibility supports literature discussing the limitations of Third-Party Logistics (3PL) in e-commerce. While 3PL reduces the workload, it introduces hidden costs and a loss of control over specific operational processes (Sukhothai, 2023). This highlights that entrepreneurs must manage the risk of variable costs tied to inventory and services that lack customization for unique needs.

3. Operational Trade-off: Speed vs. Accuracy

The finding that Fulfillment improves delivery speed but shows an increased error rate during major sales campaigns points to the inherent fragility of the e-commerce supply chain (Chaiyaphum et al., 2022). System pressure during peak orders creates a critical trade-off between time efficiency and picking accuracy—an operational metric often outside the entrepreneur's direct control.

4. Enhancing Brand Credibility and Image

The research suggests that utilizing established Fulfillment providers enhances the perception of professionalism and builds customer confidence. This is an effective strategy for small businesses seeking to elevate their Perceived Service Quality in the eyes of the customer (Wichaidit & Tanthapanich, 2021).

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