

Analysis on the Inventory Management Practices of Guizhou Liansheng Pharmaceutical Co. Ltd. in China: Basis for Strategic Plan

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Abstract. The study analyzed the inventory management practices of Guizhou Liansheng Pharmaceutical Company in China. Through survey questionnaires administered to 80 employees selected via purposive sampling, the research examined the company's inventory management system, focusing on factors such as business size, years in operation, ISO compliance, and asset size. Results were analyzed using descriptive statistics, mean scores, and tabulation. The study aimed to characterize the company's inventory management system, assess its scope, methods, benefits, and challenges, and evaluate its impact on production and financial performance. A strategic plan was proposed to enhance the management system, considering ethical considerations throughout the research process. The findings highlighted the importance of efficient inventory management for productivity and financial performance, suggesting areas for refinement to align practices with the company's goals and objectives.

Keywords: Inventory management; Pharmaceutical company; Practices; System; Strategic plan

1. Introduction

Inventory management plays a crucial role in maintaining balance between supply and demand within organized supply chains, with efficient practices significantly enhancing sales and profits. However, small businesses often overlook the importance of inventory management, leading to the accumulation of excess inventory and associated cash investments over time, hindering their ability to control inventory flow effectively (Bai & Zhong, 2008). Effective inventory management can confer a competitive advantage by enabling businesses to efficiently manage and reduce inventory levels, as highlighted by

Sprague and Wacker (1996), while poor management negatively impacts organizational performance, especially in manufacturing companies. The inventory management within pharmaceutical companies lies in the limited understanding of the specific challenges and opportunities unique to this industry. While inventory management principles are well-established, their application within the context of pharmaceutical operations, which involve stringent regulations, perishable products, and high-value goods, remains underexplored.

Challenges in inventory management include inadequate maintenance of storage records and paperwork, which can lead to errors and discrepancies between actual and recorded inventory levels (Boyer, 2010). Such inaccuracies, attributed to inventory shrinkage, transaction errors, and material misplacement, can result in financial losses of up to 10% (Raman et al., 2001). Recent transformations in inventory management techniques have emphasized the importance of a comprehensive system that encompasses physical infrastructure, planning and control structures, management information architecture, and organizational integration (Swaleh et al., 2014). Inadequate inventory management can disrupt production lines, causing shortages of raw materials and impacting distribution cycles, thereby affecting an organization's productivity and operational efficiency (Esther, 2012). Therefore, this study aims to explore inventory management in pharmaceutical companies, focusing on the system's scope, methods, benefits, challenges, and its impact on production and financial performance, to contribute to the improvement of inventory management practices in the industry.

2. Methodology

The research design employed in this study was quantitative and descriptive, following the principles outlined by McCombes (2019) and Amante (2010). Descriptive research aims to accurately depict a population, condition, or phenomenon without altering the underlying circumstances. Utilizing a survey research design, the study gathered information through questionnaires, allowing for systematic data collection and analysis. This approach was chosen to identify and evaluate the inventory management practices of Guizhou Liansheng Pharmaceutical Co. Ltd. in China, aligning with the study's goals and objectives.

2.1. Sampling Procedure

Purposive sampling was employed in this study to selectively target individuals directly involved in inventory management within Guizhou Liansheng Pharmaceutical Co. Ltd. This approach, also known as judgmental or selective sampling, was chosen due to the specialized nature of the research topic, requiring participants with specific knowledge and experience in pharmaceutical inventory management. Unlike random sampling methods, purposive sampling allows the researcher to deliberately choose participants who possess the characteristics or experiences most relevant to the research objectives, ensuring the collected data provide in-depth insights into the inventory management practices of the pharmaceutical company.

2.2. Respondents

The respondents for the study were the 80 employees involved in inventory management, and managers were requested to provide data about the company. These respondents played a crucial role in determining and assessing the inventory management practices of Guizhou Liansheng Pharmaceutical Co. Ltd. in China. Out of the 500 employees working at the company, only 80 were selected as the sample size, with a margin of error of 10 percent and an accuracy rate of 90 percent.

2.2.1 Research Site

The study was conducted at Guizhou Liansheng Pharmaceutical Co. Ltd., situated in the culturally diverse province of Guizhou in southwestern China, known for its rich ethnic tapestry comprising 18 minority groups. The choice of Guizhou as the study location allowed the researcher to explore inventory management practices within the context of a region characterized by unique geographical features, cultural diversity, and the challenges posed by its steep terrain, which pharmaceutical companies, including Guizhou Liansheng Pharmaceutical Co. Ltd., have adapted to through terraced farming techniques.

3. Results and Discussion

3.1. Profile of Guizhou Liansheng Pharmaceutical Company

Table 1 shows the data on the profile of Guizhou Liansheng Pharmaceutical Company

Table 1 Company Profile

Items	Profile
Business Size	Large Scale
Number of Employees	500
Years in Operation	20 years
Platform/System Used	ERP (Enterprise Resource Planning) software and Manual Inventory
ISO Compliance	ISO 9001 Standard: Quality Management System, ISO 14001 Standard: Environmental Management System and ISO 27701 Standard: Privacy Information Management System
Asset Size as of 2022	650 million RMB

Guizhou Liansheng Pharmaceutical Co. Ltd. was a large-scale business in Guizhou, China, engaged in medical supplies and wholesale activities. With over 500 employees, the company had been operating for 20 years and continuously provided pharmaceutical supplies within and outside China. Despite facing temporary issues with its ERP software, the company managed its inventory manually, highlighting the critical role of inventory management in its operations. Notably, the company adhered to ISO standards, including ISO 9001 for quality management, ISO 14001 for environmental management, and ISO 27701 for privacy information management, emphasizing its commitment to meeting customer needs, protecting the environment, and ensuring privacy compliance. Moreover, with total assets reaching approximately 650 million RMB as of 2022, and with four subsidiaries expanding its network, the company demonstrated significant growth and expansion in its business endeavors, emphasizing its robust presence and influence in the pharmaceutical industry.

3.2 Inventory Management System of Guizhou Liansheng Pharmaceutical Company

3.2.1 Scope

The employees largely agreed that the inventory management system aimed to enhance efficiency and determine necessary stock quantities. While some aspects received higher ratings than others, overall, there was agreement that the system served its intended purposes to some extent. Inventory management involves overseeing product tracking from storage to delivery, focusing on optimizing stock management to reduce costs, enhance productivity, and meet customer needs. The system effectively facilitated timely stock replenishment, optimized warehouse space, and improved employee efficiency. Despite areas for improvement, the system largely succeeded in ensuring timely deliveries and meeting customer demands, demonstrating its essential role in effective stock management.

3.2.2 Methods Used

The pharmaceutical company's inventory management system effectively utilizes various methods, with the perpetual inventory system receiving the highest approval rating of 3.25 and the Just-in-Time (JIT) method rating slightly lower at 3.0. Overall, there is a general agreement (3.14 weighted mean) on the effectiveness of the methods employed, highlighting the importance of selecting appropriate inventory management strategies to minimize costs and prevent stock issues.

3.2.3 Benefits

The data analysis indicated varying levels of agreement with the effectiveness of the inventory management system, with item 1 receiving the highest weighted mean of 3.25 and item 5 the lowest at 3.0. Overall, the average weighted mean for the benefits was 3.19, indicating general agreement. However, respondents noted deviations between inventory reports and actual counts, emphasizing the importance of addressing system issues to improve efficiency.

3.2.4 Challenges

The data unveiled varying challenges within the pharmaceutical company's inventory management system, with item 1 receiving the highest weighted mean of 3.50 and item 4 the lowest at 3.0. Overall, the average weighted mean for the challenges was 3.29, indicating a strong agreement. Respondents highlighted difficulties in shipping products on time, which could damage the company's

reputation, and the impact of unforeseen economic downturns on stock supply and availability.

3.3 Impact of Inventory Management Practices of Guizhou Liansheng Pharmaceutical Company

3.3.1 Production

The data revealed varying effectiveness in inventory management practices, with item 4 scoring the highest weighted mean of 3.50 and item 5 the lowest at 3.20. Overall, the average weighted mean for the methods used was 3.35, indicating consistent adherence to inventory management practices. However, respondents highlighted challenges in dealing with unpredictable scenarios such as seasonal fluctuations and sudden market changes, underscoring the need for efficient forecasting methods. The insights are drawn from the study and underscore the importance of addressing challenges in inventory management practices (Wisys, 2022).

3.3.2 Financial Performance

The study indicated varying effectiveness in inventory management practices concerning financial performance, with item 5 scoring the highest weighted mean of 3.56 and item 4 the lowest at 3.30. Overall, the average weighted mean for the methods used was 3.42, which indicates consistent adherence to inventory management practices. These findings underscore the need for effective inventory management practices to optimize financial results and avoid negative impacts on the company's performance.

3.4 Propose a Strategic Inventory Management Plan for Guizhou Liansheng Pharmaceutical Company

The proposed strategic plan identified areas for enhancing inventory management, focusing on scope, methods, benefits, and challenges to minimize losses and discrepancies in inventories. It emphasized the importance of utilizing an operating system (OS) to improve inventory record accuracy, while acknowledging the necessity of manual inventory management during OS issues or maintenance.

4. Conclusions

Guizhou Liansheng Pharmaceutical Company emerges as a significant player in the industry, boasting a substantial scale with four subsidiaries and a sizable asset base of 650 million RMB. As a large company, compliance with ISO standards is expected to ensure the provision of quality products and management systems. The study underscores the importance of considering the scope, methods, benefits, and challenges of the company, particularly in inventory management, to drive further improvement and enhance the quality of products and services offered. It's evident that inventory management significantly impacts production and financial performance, with poor management leading to shortages, overstock, and potential profit losses. The proposed strategic plan, derived from this study, focuses on addressing issues and concerns across various variables to improve and optimize inventory management at Guizhou Liansheng Pharmaceutical Company, ultimately aiming for enhanced efficiency and profitability.

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References

- Amante, L. M. (2010). *Descriptive research. Educational Research Basics by Del Siegle*. <http://www.educationalresearch.net/researchpaper.htm>
- Bai, L. and Zhong, Y. (2008), "*Improving inventory management in small business: a case study*", Master Thesis dissertation, Jönköping University, Sweden.
- Boyer, S. (2010). *Research opportunities in supply chain management*". Journal of the Academy of Marketing Science, 38.
- Esther, U. U. (2012). Effectiveness of Inventory Management in a Manufacturing Company. Thesis, Caritas University, Amorji-Nike, Department of Accountancy.
- McCombes, S. (2019). How to Write a Descriptive Essay. Scribbr. <https://www.scribbr.com/academic-essay/descriptive-essay/>

- Raman, A., DeHoratius, N., & Ton, Z. (2001). *Execution: The Missing Link in Retail Operations*. *California Management Review*, 43(3), 136–152.
- Sprague, L.G. and Wacker, J.G. (1996), “*Macroeconomic analyses of inventories: learning from practice*”, *International Journal of Production Economics*, Vol. 45 Nos 1–3, pp. 231–237.
- Swaleh, Anisa, L., Dr. WERE, & Susan. (2014). *Factors Affecting Effective Implementation Of Inventory Management Systems In The Public Sector (A Case Study Of National Aids Control Council)*. *International Journal of Social Sciences Management and Entrepreneurship*, 1(2), 17–32.
- WiSys. (2022). What Are The Common Problems In Inventory Management? *Supply Chain Management Solutions for Macola and SAP Business One*. <https://www.wisys.com/what-are-the-common-problems-in-inventory-management/>