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Sales Trend Analysis and Demand Forecasting of Vasantham Fish Nets

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Abstract

The aim of the present study is to analyze the sale trend and forecast the demand of fish nets produced/manufactured by the Vasantham Industrial Centre, Konam, Nagercoil. Secondary data has been used to gather the research for 5 years (2019-20 to 2023-24) from sales records of the company. The goal of the study is to analyze the sales performance metrics, understand the seasonal demand, and predict the future demand through predictive analytics techniques. Various analytical techniques have been used, such as quarterly trend analysis, descriptive statistics, seasonal index, moving average and linear regression. The results suggest that seasonal fishing, market demand and other factors like the COVID-19 pandemic affect the performance in sales. Sales have been volatile in the short term but have been on an increasing trend over the long run. A method of seasonal decomposition is used to forecast future sales. The study indicates that forecasting is beneficial to production planning, inventory management and decision making. The study demonstrates that predictive analytics can have a meaningful impact on improving operational efficiency and aiding sustainable business growth. What is outlined below are key points to remember when interpreting the data in this report.Here are some of the key points to remember when considering the data in this report:

Introduction

In today's competitive business landscape, companies increasingly turn to data-driven decision-making, seeking ways to enhance their effectiveness and performance. Trend analysis is one of the important tools which helps businesses to analyze the past performance and forecast their future demand. Sales trend analysis requires looking back at past trends and identifying them, as well as growth and fluctuations. It enables organisations to grasp the seasonal fluctuations and demand cycles. Demand forecasting involves predicting future demand based on historical data and analysis to improve planning and resource allocation. Production of fish nets is seasonal in nature, depending on the fishing activities, weather and traditions in the region. Vasantham

Industrial Centre is a very dynamic place\ to operate, where accurate forecasting is essential. The objective of this study is to investigate the sales trend and predict future sales requirements by applying predictive analysis in order to enhance the optimization of production planning and also the operating efficiency.

Objectives of the Study

Analysing the trend of sales of fish nets for last 5 years at Vasantham Industrial Centre.

- To determine seasonal variations and demand pattern of fish net sale.
- To assess the predictive analytics methods that are being applied to forecast demand.
- To predict the future demand for fish nets to plan fish production and inventory.

Research Methodology

This study is descriptive research, secondary data obtained from company data.

Microsoft Excel Data Source Type: On-line Database Analysis Region: United States Data Source: Company sales data Tools Used: Microsoft Excel Data Source Type: On-line Database Analysis Region: United States

- Trend Analysis
- Seasonal Analysis
- Moving Average

Explore the concepts of regression analysis and demand forecasting.Discuss regression analysis and demand forecasting.

The figures of the actual sales were represented by using indexing values, trend observations and categorized levels of demand in the journal article in order to maintain the confidentiality of the organization.

Company Profile

The manufacturing industry of fish nets is important for fisheries and aquaculture. The industry has progressed from the old-fashioned natural fibre nets to the new synthetic nets of nylon and polyethylene, making them more durable and efficient. Fishing in India is seasonal, regulated by the government, and is being expanded because of the increased demand for seafood. The state of Tamil Nadu, which is also a coastal state, has high demand for fish nets as there are active fishing communities. Vasantham Industrial Centre, Konam, Nagercoil was started in 1980 as a fish net manufacturing unit. The company manufactures nylon fish nets of various thicknesses, mesh sizes and depths. The company has established itself well in regional markets with the help of modern machinery and trained staff.

Review of Literature

As far as the application of sales trend analysis and forecasting the demand is concerned, it has been extensively studied in the field of Predictive Analytics, especially in industries where the demand has stable variability in the form of fluctuations and seasonality. Both Pratheesh P. and Rajalakshmi K. are from Chhattisgarh. Retail buying behaviour has been shown to be highly sensitive to seasonal fluctuations in demand, economic environment and product availability in emerging economies (2025), making it important to analyse past sales data to gain an understanding of market trends. Chen Y. et al. (2025) showed that consumer behaviour in omnichannel environment is dynamic and can be affected by digital and physical touchpoints, requiring more sophisticated analytical tools that are able to capture complex demand patterns. Joshi A. In their study (2024), they demonstrated that time-series forecasting methods like moving averages and regression models

can make more precise demand predictions, particularly when considering seasonal variations. Gupta R., Sharma S. (2023) stated that predictive analytics helps in better resource allocation and planning of inventory, which in turn is helpful in achieving the efficiency in operations for small and medium enterprises. Kumar V. (2022) discussed the significance of seasonal index analysis in determining the peak and off-peak demand periods and how this analysis can help companies schedule their productions according to the market needs. Moreover, demand forecasting research consistently reports that the use of statistical methods, such as using historical data, increases the quality of decision making and decreases uncertainty in business operations.

Research Gap: The literature is geared towards larger units and retail organizations and does not focus on units with seasonal demand and small in size. In the traditional industries like fish net making, the study of sales trend analysis and demand forecasting on a single firm level is lacking in the empirical studies. This study focused on this gap to analyze the past sales volume and predict the future demand in a small-scale fish net production unit using the method of predictive analytics.

Data Analysis and Interpretation

Trend Analysis

Quarterly Sales Trend Analysis examines sales performance across quarters to identify seasonal patterns and business fluctuations.

Table 1 Annual Revenue Comparison (Indexed Representation)

Financial Year	Trend
2019 - 20	Stable Performance
2020 – 21	Sharp decline
2021 – 22	Strong Recovery
2022 – 23	Steady Growth
2023 – 24	Highest Performance

Source: *Annual Reports*

Figure 1 Quarterly sales trend

The quarterly sales trend analysis indicated that there were large variations in sales revenue throughout the study period. In 2019–20, the company continued to perform consistently in terms of sales. But, a significant decrease was noted for 2020-21 as a result of Covid-19 pandemic and temporary production halts. The company has reported its strong recovery in 2021–22 and has posted a consistent growth for the year 2022–23 and 2023–24. The analysis shows that there is an overall positive long term trend in sales performance.

Seasonal Analysis

Table 1 Seasonal Sales Pattern

Quarter	Seasonal Index	Demand Level
Q1	0.8330	Moderate
Q2	1.0557	High
Q3	1.1423	Very High
Q4	0.9691	Low

Source: *Annual Reports*

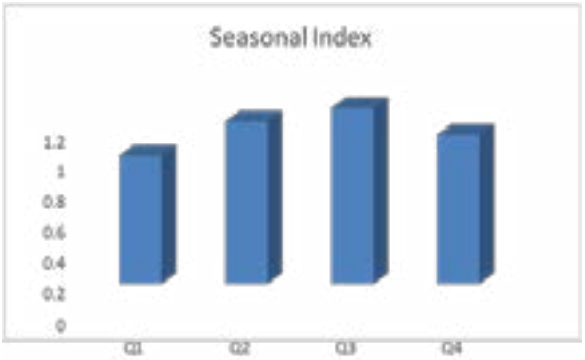

Figure 1 Seasonal Index

The seasonal index analysis shows that demand for fish nets is seasonal with significant differences between the quarters. The months of October-December experienced the highest seasonality index value (1.1423) which indicated that this is the highest fishing season based on the market demand. The lowest seasonal index value was observed for Q1 (0.8330) which means that sales in that season were not as strong. The result reaffirms the fact that seasonality and monsoon conditions have significant impacts on sales variations.

Moving Average

Table 2 Moving Average Trend

Period	Trend Direction	Trend Direction
2019 - 20	Stable	Normal Growth
2020 – 21	Decreasing	COVID-19 Impact
2021 – 22	Increasing	Post-COVID Recovery
2022 – 23	Stable Growth	Market Expansion
2023 – 24	Increasing	Peak Growth Phase

Source: Annual Reports

To eliminate short-term fluctuations and determine the long-term sales trend, the 3-quarter moving average analysis was performed. The analysis revealed a downward trend in the period of the COVID-19 impact (2020-21). The moving average showed steady progress from 2021–22 onward, signaling steady post- Recovery from a pandemic and growing demand for markets. This trend indicates long-term overall business progress and performance.

Regression Analysis and Demand Forecasting

Table 4 Forecast Demand Trend

Future Period	Forecast trend
2024 - 25	Moderate Growth
2025 - 26	Increasing Growth
2026 - 27	High Demand Growth
2027 - 28	Continued Expansion
2028 - 29	Strong Market Growth
2029 - 30	Peak Forecast Demand

Source: Annual Reports

Linear regression analysis showed a positive correlation between the time and quarterly revenue. The regression equation suggested that there would be a continuing increase in income over the period of the study. The outcome of the demand forecasting revealed that there will be a continuous rise in future sales demand particularly during peak fishing seasons. The company may need to expand its production capacity and make better production plans based on the forecasted demand levels exceeding the current production capacity beyond 2024–25.

Key Findings

- Based on the thorough analysis, the following findings are presented:
- The sales fluctuate seasonally according to the patterns of fishing.
- The long-term sales trend is positive although there are some short-term fluctuations.
- There was temporary disruption in sales due to COVID-19.
- Seasonal index is a measure of periods of peak demand.
- A moving average provides a smoothening effect and enhances the trend of the growth.
- There is a good trend of regression upwards.
- Demand forecasting shows growth potential in the future.
- Inventory planning is affected by demand variability.
- Production planning should be synchronized with the demands of season.
- Predictive analytics ensures more accurate decision making.

Suggestions

- Based on the results of the study, the following is recommended to improve:
- Use sophisticated forecasting models to increase forecasting accuracy.
- Co-ordinate production with seasons.
- Optimize stock management to prevent stock-related problems.
- Keep in a state of safety stock in peak seasons.
- Utilize e-tools for sales tracking and analysis.
- Expand product offering to mitigate risk throughout the season.
- Enhance strategies for market expansion.
- Keep track of external influences on demand.
- Enhance systems of data collection and analysis.
- Emphasis on cost containment and operational efficiencies..

Conclusion

The study was carried out on the sales trend analysis and forecasting of fish nets produced by Vasantham Industrial Centre with the help of predictive analytics techniques. The analysis revealed that seasonal demand, fishing operations, and external disturbances like COVID-19 pandemic influenced the performance of the sales. Quarterly trend analysis, seasonal index analysis, moving average method and linear regression had proved to be useful tools in understanding the sales behavior and future trends. The results showed positive long term growth trend and an increase in the future demand for fish nets. The study results indicate that the techniques for predictive analytics are contributing to the improvement of demand forecasting, production planning, inventory management and strategic decision making. Data driven forecasting tools can facilitate the company's operational efficiency and sustainable business development in the future.

References

1. Slawek Smyl. "A Hybrid Method of Exponential Smoothing and Recurrent Neural Networks for Time Series Forecasting.",International Journal of Forecasting, Volume 36, Issue No. 1, 2020.
2. Vivek Prasanna Prabu. "AI-Powered Predictive Analytics for Retail Demand Forecasting.", International Journal of Innovative Research in Engineering & Multidisciplinary Physical Sciences, Volume 11, Issue 2, ISSN: 2349-7300, 2023.
3. Paduloh Paduloh and Abdul Ustari. "Analysis and Comparing Forecasting Results Using Time Series Method to Predict Sales Demand in COVID-19 Pandemic Era.", Journal of Engineering and Management in Industrial System, Vol. 10, No. 1, 2022.
4. Priya Singh, Deepa Sharma, Deepa Patel, and Neha Bose. "Enhancing Sales Forecasting Accuracy Using Machine Learning Algorithms and Time Series Analysis.", Journal of AI ML Research, Volume 9, Issue 4, 2020.
5. Putri Huriati, Aldo Erinda, Alde Alanda, Dwiny Meidelfi, Rasyidah, Defni, Ade Irma Suryani. "Implementation of the Moving Average Method for Forecasting Inventory in CV Tre Jaya Perkasa." International Journal of Advanced Science Computing and Engineering, Vol. 4, No. 4, 2022.
6. R. Sneha Iyer. "Implementing Sales Forecasting with Predictive Analytics." International Journal of Computer Technology and Electronics, Volume 3, Issue 2, 2020.
7. Dr. Kamal Bhatia and B.P. Gupta. "Predictive Analytics for Customer Behavior and Sales Forecasting in Retail.", International Journal of Web of Multidisciplinary Studies, Vol. 02, No. 01, pp. 24–30, 2025.
8. Muhammad Sajwal, Sardar Usman, Hamed Sanad Alshaikh, Asad Hayat, and M. Usman Ashraf. "Predictive Analysis of Retail Sales Forecasting Using Machine Learning Techniques.", LGU Research Journal of Computer Science & IT, Volume 6, Issue 06, 2022.
9. Chih-Hsuan Wang and Yu-Wei Gu. "Sales Forecasting, Market Analysis, and Performance Assessment for US Retail Firms: A Business Analytics Perspective.", MDPI Applied Science, Volume 12, Issue 17, 2022.
10. Nagalakshmi M. V. N., Y.V.N. Sai Sri Charan, Dr. Chandrika Reddy, Dr. Priya Dongare Jadhav, Deepa Pillai, and Ajay Kumar Dogra. "Sales Forecasting and Demand Prediction Through Time Series Analysis and Machine Learning.", International Journal of Applied Mathematics, Volume 38, No. 6s, 2025.
11. Sales Report of Vasantham Industrial Centre (2019–20 to 2023–24). Konam, Nagercoil.