

Dashboard-Driven Financial Analysis of Sales Performance in Healthcare Technology Manufacturing: An Empirical Study

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ABSTRACT

In the modern era of competition and informativeness, companies must transcend the old-fashioned way of reporting to ensure efficiency and sustainability. This project investigates the potential use of a new methodology for analysis by utilizing dashboard visualization to improve sales performance. Statistics were used in this study to analyze internal data on sales that include income and contributions from products and regions, suggesting the capability of raw data to deliver valuable results. It was revealed that adopting dashboard visualization using tools such as Power BI and Excel offers a wider perspective on the development of organizations. Business Intelligence, Data Visualization, Interactive Dashboards, Financial Analysis, Sales Performance, Revenue Tracking.

Keywords: *Sales Performance Analysis, Dashboard Visualization, Financial Analysis, Healthcare Technology, Business Intelligence, Key Performance Indicators, Power BI*

Performing analyses on sales performance is a foundational aspect of financial management because it has a direct effect on the generation of revenue, allocation of resources and direction of long-term strategy development. The analysis of sales data can generate valuable insights by providing information regarding customer purchasing habits, the contribution of specific products to revenue-generation, seasonality, and regional differences within the marketplace. However, converting transactional data into these types of insights requires a reliable, interactive, and real-time analytical framework.

Organizations across all industries are increasingly being pushed to maintain a competitive advantage and to ensure financial viability by using structured analytical methodologies to analyze how their sales business operates on an ongoing basis. Companies that manufacture products (e.g., healthcare technology) are focused on the timely and accurate analysis of their sales data, and it is a critical component of being able to continue supporting business processes that are required within companies to ensure their ability to succeed. Processes that companies have implemented for periodic manual reporting and relying on static Excel reports has not been sufficient to capture the fluidity of multidimensional sales performance today.

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Business Intelligence tools like Microsoft Power BI (dashboard platforms) have changed the way businesses use information. With dashboards, multiple data streams are merged into one place with a visual interface making it easy for all types of managers at any level in an organization to monitor their companies' KPIs and make proactive decisions based on what they are experiencing in the marketplace today. In addition, dashboards offer the ability to drill down by various dimensions, such as product category, geography and time period; thus, therefore are much more powerful than traditional reporting methods.

This research looked into using a dashboard (visualization) approach to help improve the sales results of a medical device company's financial success. The company being studied sells/manufactures/distributes medical grade cables, ECG devices, Holter monitors, cardiac monitoring systems, and other medical device accessories. The company sells a lot of medical technology in a very dynamic healthcare technology marketplace in India; therefore, it has large volumes of sales data that need to be analyzed consistently to achieve full potential.

The key to this research was to identify through dashboard visualization (work with management) that there is a connection between operational data (raw data) and how management will use that data in making strategic decisions about their company so they can identify their strong performing areas, diagnose areas of underperformance, and create evidence-driven plans for continuing growth.

REVIEW OF LITERATURE

Several studies have recently indicated that there is a strong scholarly interest in the intersection of business intelligence and financial analytics. Davenport and Harris (2007) showed that businesses that incorporate analytics into their core decision-making processes perform better than companies who rely on instinct to make operational decisions. Their research emphasized the strategic importance of converting operational metrics into competitive intelligence.

Watson and Wixom (2007) conducted a large-scale survey concerning the trends of BI adoption; they found that BI dashboard tools greatly improved companies' ability to respond rapidly to the marketplace by allowing them to monitor their performance in real-time. Quality of data and sponsorship at the executive level were identified as critical conditions to successfully implement descriptive BI tools. Similarly, Chen, Chiang, and Storey (2012) contended that BI and analytics are no longer just referential tools, but rather transformative platforms and processes that can drive value creation throughout an entire organization.

Nurdin et al. (2023) showed that the effectiveness of BI tools integrated into sales information systems significantly increases data accuracy, improves reporting efficiency, and provides sales information in real-time; therefore, reducing time between making a decision and implementing that decision. Shivankar et al. (2023) extended the research conducted by Nurdin et al. (2023) to include predictive analytics embedded into sales dashboards, and they found that when presented with interactive BI platforms, sales forecasters have significantly improved forecasting accuracy.

Das et al. (2023) used Power BI dashboards in making strategic business decisions and found that visual analytics make it easier to identify performance gaps such as profit margins decreasing while revenue is increasing when compared to traditional reporting methods (i.e.,

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using tables). This relevance is particularly strong for companies that have many different types of products, as well as companies that have a geographical distribution of products and/or customers.

Eckerson (2011) determined that performance dashboards allow for the monitoring of key performance indicators (KPIs), thus providing the structure necessary to ensure accountability and alignment with goals, through real-time KPI monitoring of financial performance, to improve the overall financial position of an organisation. In his analysis of dashboard design, he emphasised that all stakeholders must have access to appropriate dashboard designs for their respective contexts (e.g., executive management, sales, financial controllers). Genotiva (2025) showed that when centralised BI dashboards are used instead of legacy reporting systems, delays in reporting are reduced, there are no inconsistencies within reported data, and transparency within the organisation increases.

Research conducted by Saravana Priya, et al. (2024) found that dashboards helped identify high-performing product categories and helped make inventory and pricing decisions based on data. Similarly, in the context of supply chain operations, Kadam et al. (2024) confirmed this by stating that there was a decrease of 25% in stock-out occurrences after the implementation of dashboards. This body of literature demonstrates that using dashboards goes beyond just providing visual representations of data (i.e., charts, graphs, tables, etc.) to creating a new analytic paradigm which will enhance the overall effectiveness of an organisation performance.

Power BI dashboards have been used for strategic decision-making processes by Das et al. (2023), which found that the use of visual analysis tools made it easier to discover performance gaps, such as decreased profit margins, even as revenues increased. The finding can be helpful to organizations with multiple product lines and regional distribution channels. In terms of finance, Eckerson (2011) demonstrated that performance dashboards offered a structured approach to real-time KPIs, thus improving managerial accountability and alignment. It was stated that the design should be tailored based on the context and audience, allowing managers to see different information on performance metrics, whether in executive, sales, or financial departments. Genotiva (2025) proved that using BI dashboards instead of traditional reports resulted in better organizational transparency by reducing reporting errors, eliminating inconsistencies, and increasing reporting speed.

As per studies by Saravana Priya et al. (2024) in the field of retail analytics, dashboarding helped identify successful product categories, thereby guiding managerial decision-making related to inventory and pricing. Kadam et al. (2024) also support the above findings, as supply chain-related dashboards were proven to decrease stock-out incidents by 25%.

Research Gap

There are still numerous major gaps present in the literature surrounding business intelligence and analytics dashboards. First, the large majority of the literature focuses on large-scale retail or technology organizations, leaving a void with respect to research done on specialized manufacturing organizations, particularly in relation to the field of healthcare technology. Second, there are very few studies that explore integrating data preparation, multidimensional visualization, and financial performance measurement and evaluation into a holistic empirical framework that has been utilized in a real-world organizational setting to analyze performance (i.e., the performance measurement of a business). Third, there appears to be

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very little comparative evidence available regarding any differences that exist between dashboard-based systems compared to traditional reporting systems with respect to their respective effectiveness and efficiency for organizations operating in specific industries with highly complex product portfolios. This study seeks to address each of these identified gaps by conducting a thorough empirical analysis of a dashboard implementation as it relates to sales performance analysis at a healthcare technology manufacturing organization.

Objectives

Objectives of the study include the following:

- Analysing the performance and revenue generation of the company through the use of dashboard visualizations.
- Determining the sales trends and time series of the product sales.
- Assessing the contribution of individual products and categories toward the bottom line.
- Identifying variations among different regions in sales performance and profit margins.
- Creating an interactive dashboard that enables real-time decision making.
- Gaining insight into product rationalization, regional development, and effective sales management strategies.

RESEARCH METHODOLOGY

Research Design

A descriptive research methodology is used to investigate the existence of any trends, performance gaps, and distribution patterns in sales data without conducting an experiment and manipulating variables. The method supports the identification of trends and patterns within sales data from various dimensions.

Data Collection

Secondary data only is utilized for analysis in this study. The source of secondary data in this case comprises the organization's internal data. Such data includes sales transaction data, financial performance data, and product billing data. Surveys and interviews were not carried out in this case. The data was collected confidentially and spans more than one financial period.

Sampling Techniques

Convenience non-probability sampling was applied in this research design. The data available from the organization's internal data was chosen conveniently. Since the data provided covered all aspects, the need to use random sampling was unnecessary.

Data Analysis and Visualization Tools

Excel and Power BI were used to analyze data, clean data, and present data in a graphical format. Analytical methods adopted include descriptive analysis, trend analysis, comparison between products and regions, KPI tracking, and demand forecasting.

ANALYSIS AND INTERPRETATION

Dashboard Overview and Key Performance Indicators

This study's interactive dashboard is a multi-dimensional view of organization's sales and financial performance through development of a centralized dashboard with filter

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mechanisms for region, product category, and time period to allow end-users (stakeholders) to tailor analysis based on their own specific needs for information.

Table 1: Summary of Key Performance Indicators

KPI	Value	Interpretation
Total Sales Revenue	₹2.30 Million	Overall revenue for the analysis period; reflects market reach and product demand
Month-to-Date (MTD) Sales	₹83.83K	Short-term performance snapshot; positive growth percentage indicates improving momentum
Year-to-Date (YTD) Sales	₹733.2K	Cumulative annual revenue; supports long-term growth trend assessment
Total Profit	₹193.53L	Aggregate profitability; indicates cost management effectiveness
Parallel Period Comparison	₹954.7K	Benchmarks current performance against equivalent prior-period data

The dashboard's KPI panel enables rapid identification of performance status without requiring deep-dive data analysis, making it particularly valuable for senior management and cross-functional teams seeking operational visibility.

Sales Trend Analysis

The temporal sales trend analysis reveals a consistent upward trajectory in revenue across the analysis period. This growth pattern reflects sustained market demand, effective channel management, and progressive expansion of the customer base. The dashboard's forecast component, generated through historical data extrapolation, projects continued revenue growth, providing a forward-looking basis for strategic planning.

Periodic fluctuations observed in the trend data are attributable to seasonal demand cycles, which are characteristic of the healthcare device market—particularly in the context of procurement patterns by hospitals and healthcare institutions. Recognizing these cycles enables the organization to calibrate production schedules, inventory holdings, and sales outreach activities accordingly.

Product-wise and Regional Sales Analysis

Table 2 presents the region-wise and product-wise sales distribution derived from the dashboard analysis.

Table 2: Regional Sales Distribution by Product Category (in Millions)

Region	Cardiac Monitoring	ECG Monitoring	Defibrillator	Total Sales
West	17M	21M	16M	54M (Highest)
South	17M	16M	17M	50M

The best performing geographic segment in overall sales is the West, which has recorded 54 million because of the popularity of ECG Monitoring (21M) and Cardiac Monitoring (17M) devices in the west region. This means that there is an effective distribution process and good relationship with institutional clients.

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The south region does relatively well in sales, which totals 50 million, while the east performs average at 46 million sales. There is an opportunity for both regions to improve their performance by using certain strategies.

The Central Region ranks last in overall sales with 43 million. However, there are high performances in both Cardiac and ECG Monitoring. The sale of defibrillators (4 million) is very low.

Region-wise Profit Distribution

Profit distribution across regions reveals an important divergence from the sales volume rankings, as detailed in Table 3.

Table 3: Region-wise Profit Distribution

Region	Profit (₹)	Profit Share (%)	Performance Status
West	₹91.52L	47.0%	Leader – Highest profitability
Central	₹41.26K	21.5%	Requires strategic focus
East	₹32.76L	16.8%	Growth potential available
South	₹28.59L	14.7%	Below-average contribution

West represents almost half (47%) of overall organizational profit margin, thus underlining its importance. Such performance can be attributed to a combination of high margin product mix, good pricing, and efficient operations in regional distribution. Sales volumes in South and East regions are relatively good. However, their contribution to profit margins is significantly low. It might indicate that some issues exist in these regions regarding cost structure, discount strategy, and/or product mix quality. Profit margin in the Central region looks disproportionately high in view of lower sales volumes. This suggests per unit margins might be high due to more premium products' sales.

Sales and Profit Trend Comparison

From the analysis of the two variables during the selected time periods, it is clear that there is an increasing trend when it comes to sales and profit margins. This shows that the increase in sales did not affect the profit margins negatively since the profit margins have also increased. This clearly shows that the organization has no problems in cost control, pricing, and product lines.

The periods when the difference between these two variables increases are due to one of the following: increased marketing expenditure, heavy discounts, or increased cost of production.

Customer Segment and Order Volume Analysis

Analysis of the segment of the customer indicates that the institutional distributor customers are the major buyers, whose purchase volumes make up a considerable portion of the total volumes purchased because it is known that institutional distributors make purchases in large volumes. However, even though the volume of purchase made by hospitals and clinics is less than the one made by institutional distributors, the latter have high transaction values. This is evidenced by increased order volumes within these two segments, and it shows increasing product reputation.

This trend of changing order volume seasonally is consistent with the trend of changing sales.

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Findings

The study reveals the following essential findings:

- Revenue is steadily increasing throughout the entire period of analysis owing to high market demand and proper distribution management.
- The company's profitability has been growing alongside its revenues, suggesting an efficient cost control and sound financial operation.
- Cardiac monitoring and electrocardiogram devices are considered major revenue generators in all geographic areas.
- The West area ranks top in terms of both sales and profits being responsible for 47% of all company's profits.
- The Central area reveals the weakest performance results in terms of aggregate sales due to the weak presence of defibrillator category.
- South and East areas have potential growth, yet their performance does not meet the levels of their sales volume.
- Order volume is steadily rising with obvious seasonality making it possible to arrange operations according to customer demand.
- Forecast analysis predicts the growth in sales which makes an appropriate background for resource allocation.
- The implementation of the dashboard made it considerably faster and easier to detect performance issues.

Suggestions

On the basis of the empirical results, it is recommended that the following be done:

- The marketing operations should be furthered within the Central and East regions, by way of aggressive promotional activities, expanded distribution network reach, and effective pricing strategies for product types that have failed to perform well, such as defibrillators.
- Use the performance model within the West region as a benchmark for other regions, particularly through its product mix and channel involvement strategies.
- Employ a product mix adjustment strategy that will enhance the proportion of high-margin products and help plug gaps within low-performing product segments.
- Make it institutional policy to monitor regional sales manager performance through dashboards, with periodic key performance indicators evaluation and quarterly profit scorecards.
- Put in place robust data governance and validation processes to guarantee the integrity of the information used in generating insights from the dashboard.
- Integrate future demand forecasting into planning operations using dashboard projections, which would go a long way in mitigating risks associated with uncertainties.
- Craft separate customer engagement strategies for both distributor and direct-channel customers, based on margin contributions rather than volumes.

CONCLUSION

The present study highlights the significant impact of dashboard analysis on assessing and enhancing sales performance within the healthcare technology manufacturing industry. The results obtained from the use of an interactive platform based on multi-dimensional data have allowed researchers to come up with several findings related to the performance of products, regional contributions, profits, and demand forecasting.

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According to the empirical results obtained during the analysis process, the company under examination has managed to grow consistently both its revenues and its profits, which testifies to proper financial management and market strategies being implemented by the organization. However, discrepancies in performance observed in various regions and for different product categories require targeted measures.

The use of a dashboard analysis system presented in this research can go beyond being a reporting platform for the organization in question and become a powerful decision-making and planning mechanism for managers, helping them switch from reactive management decisions to strategic ones.

Use of the Dashboard Analysis System explained in this research is not limited to a reporting tool within the company in question but can be used as an effective tool by managers for making strategic decisions rather than just reactive ones.

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Conflict of Interest

The author(s) declared no conflict of interest.

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