Strategic Analysis and Development for Revenue growth in the commercial printing division of Wijeya Newspapers Ltd.
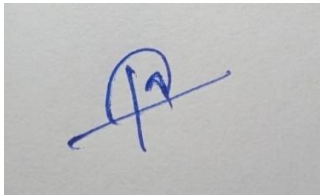
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A report submitted in partial fulfillment of the requirement for the Internship Training of the
Faculty of Science, University of Colombo

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I, W.P.N. Abeysinghe, a final year student of the Faculty of Science, University of Colombo, declare that this research report titled "Strategic Analysis and Development for Revenue Growth in the Commercial Printing Division." is my original work. The research was carried out under the placement supervision of Ms. K.D.S. Sulochana, Executive - Business Analyst of Wijeya Newspaper Ltd, and academic supervision of Dr. Janaka Adassuriya, senior lecturer of the Physics Department of the University of Colombo. Any assistance received beyond that was acknowledged in the report. All sources used in the report have been appropriately cited and referenced. This report has not been previously submitted for assessment in part or, at this or any other institution.

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Date   Date

Acknowledgments

Content

Executive summary

The Commercial Printing Division of Wijeya Newspaper Ltd plays a vital role in the organization's revenue generation. However, before this research, the division lacked structured data analysis, an organized data entry system, or a decision-support dashboard, limiting its ability to track performance and identify growth opportunities. Recognizing this gap, this study focuses on developing data-driven strategies to enhance the division's revenue growth through data management, analysis, and visualization.

As part of this research, a data entry dashboard was designed and implemented to systematically record key business metrics, including sales transactions, customer details, and product demand trends. The collected data was then analyzed to identify high-demand products, key customer segments, and overall industry trends within Sri Lanka's printing market. Insights gained from the analysis were used to develop strategic recommendations aimed at optimizing revenue streams, improving operational efficiency, and enhancing market positioning.

Additionally, a data visualization dashboard was developed to assist management in real-time decision-making, enabling better tracking of performance indicators, customer preferences, and sales trends. The study highlights how a data-driven approach can provide the Commercial Printing Division with the necessary tools to enhance competitiveness, streamline operations, and drive revenue growth.

This research marks the first strategic initiative undertaken to analyze and improve the performance of the Commercial Printing Division. The proposed solutions, including the implementation of structured data systems, analytical tools, and visualization dashboards, serve as a foundation for the division's long-term growth and sustainability in the Sri Lankan printing industry.

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1. Introduction

1.1. Background of Company

Wijeya Newspapers Ltd is a well-established organization in the advertising and publishing industry, primarily engaged in newspaper printing. It is renowned for publishing several leading newspapers and magazines in Sri Lanka, including *Lankadeepa*, *Sunday Times*, *Daily Mirror*, *Daily FT*, *Sirikatha*, *Pariganaka*, and *Tamil Mirror*.

In addition to its core publishing operations, Wijeya Newspapers Ltd operates several subsidiaries that contribute to its diversified portfolio. These include Superior Exercise Book Company, Times School of Higher Education (a private educational institute), Wijeya Digital Media, and Reach Transport Services (Pvt) Ltd.

However, following the economic downturn caused by the COVID-19 pandemic, the publishing and advertising industry experienced a significant decline. In response to these challenges, the company strategically expanded its Commercial Printing Division, which now also operates as a sub-company under Wijeya Newspapers Ltd. This division caters to both internal company needs and external client orders, offering a wide range of printed products, including calendars, leaflets, covers, tabloids, brochures, forms, and certificates.

This strategic initiative has enabled the company to effectively leverage its existing printing infrastructure and expertise to meet the growing demand for commercial printing services, thereby diversifying its revenue streams and ensuring business sustainability.

Figure 1- Commercial Printing Products

1.2. Background of Research

1.2.1. Background of the Problem

The Commercial Printing Division of Wijeya Newspaper Ltd plays a significant role in the organization by providing a diverse range of printing services, including certificates, calendars, bookmarks, booklets, and other commercial materials. While this division has been a key contributor to the company's revenue, it has faced persistent challenges related to structured data management, performance tracking, and strategic analysis.

Before this research, the division lacked a formal system for recording sales, tracking customer trends, or analyzing market demand. Additionally, no comprehensive analysis and data visualization system has ever been conducted in this area, further limiting the ability to make informed decisions. As a result, decision-making relied heavily on intuition rather than data-driven insights, making it difficult to identify growth opportunities, optimize revenue streams, and remain competitive in the Sri Lankan printing market.

Despite these challenges, the division handles several external orders per month, highlighting the need for a more structured and data-driven approach to managing and expanding its operations.

1.2.2. Problem justification

The absence of effective data management has hindered the division's ability to forecast market demand, identify high-profit products, and assess customer preferences. Without a structured real-time data visualization system, key stakeholders struggled to access critical performance metrics, leading to limited strategic planning and operational inefficiencies.

This lack of analytical capabilities resulted in missed opportunities to improve efficiency, profitability, and long-term sustainability. Given the growing competition in the commercial printing industry, adopting a data-driven approach is essential for enhancing revenue growth and maintaining a competitive edge.

1.2.3. Conceptual Framework

To address these challenges, this research focuses on implementing data-driven strategies for the Commercial Printing Division. The study involves:

- Developing a data entry system to streamline sales recording and customer trend tracking.
- Conducting in-depth sales and market analysis to identify demand patterns and develop strategies.
- Creating a data visualization dashboard to support informed decision-making by management.

By integrating data analytics and visualization tools, this study aims to provide actionable strategies that will enhance revenue growth, improve operational efficiency, and ensure the long-term sustainability of the division.

1.3. Introduction to Research Partners

The success of this research is driven by several key research partners that played a significant role in providing the necessary data and insights for analysis. These partners include various components within the Commercial Printing Division, internal and external data sources, customer segments, and commercial printing products.

1. Commercial Printing Products: The division specializes in a range of printed materials such as certificates, calendars, bookmarks, booklets, and other commercial print products. Understanding the demand, production efficiency, and sales trends of these products is essential for revenue growth analysis.

2. Internal Data Sources: The study relies on historical sales records, customer transactions, and operational data collected from the Commercial Printing Division. These internal datasets provide valuable insights into revenue patterns, seasonal demand fluctuations, and customer preferences.

3. External Data Sources: Industry reports, market trends, and demand analysis from the Sri Lankan printing industry serve as external data sources. These sources help contextualize the division's performance within the broader market landscape and highlight expansion opportunities.

4. Customer Segments: The research considers different customer groups, including businesses, educational institutions, and individual clients. Understanding customer purchasing behaviors and preferences allows for the development of targeted marketing and sales strategies.

1.4. Objectives

- Identify the problem of the company
- Develop a Data Entry System.
- Analyze Sales and Customer Trend**s**.
- Optimize Business Strategies.
- Build a Data Visualization Dashboard.

2. Methodology

2.1. Data Collection

The data collection process involved gathering internal and external data to analyze the Commercial Printing Division's revenue performance. Internal data, including historical sales records and customer transactions, was manually extracted from invoices and order logs due to the absence of a structured database. Discussions with commercial printing officers clarified sales trends, product demand, and specific data columns that required further understanding.

For external data, industry details, market trends, and Sri Lankan printing industry details were refered to understand broader market dynamics. Secondary sources, such as research papers and government reports, are collected to provide insights into industry benchmarks and emerging opportunities. Additionally, inquiries about printing technologies were made to understand production efficiency and cost structures better. This combined data collection approach laid the groundwork for analyzing sales trends, customer behavior, and strategic growth opportunities within the division.

2.2. Development of Data Entry System

During discussions with the Commercial Printing Division, it was identified that all data entry processes were being handled manually, leading to inefficiencies, data loss, and difficulty in retrieving past records. Recognizing the importance of structured data management for future decision-making, as a partial result, this research developed a small-scale data entry system to streamline the process. The system was designed using HTML, CSS, and JavaScript, with Google Sheets as the primary data storage solution. This approach ensured ease of use, accessibility, and real-time data updates. By implementing this system, the division can now efficiently record customer orders, product details, and sales transactions, reducing errors and improving operational efficiency. This structured data collection will also enable future analysis, trend identification, and strategic decision-making for revenue growth.

2.3. Data Analysis

2.3.1. Company Actual Data Analysis (2024 data)

Analyzing historical data is crucial for identifying patterns and making informed decisions. In this research, Excel was used as the primary tool for analyzing last year's commercial printing order dataset to assess revenue trends, customer segmentation, product demand, and internal company orders. While internal orders were analyzed for cost assessment, they were not considered for strategy development as they do not contribute to external revenue. However, their costs were incorporated into the visualization to provide insights into material, employee, and equipment

expenses. This helps the company understand internal resource utilization and operational costs, supporting better financial planning and efficiency.

Revenue Analysis

A comprehensive revenue analysis was conducted to evaluate the total revenue generated from commercial printing services. By examining monthly sales records, fluctuations in revenue were identified, allowing for the detection of seasonal demand patterns. Understanding which months were the most profitable provided insights into peak business periods, enabling the division to plan future production and resource allocation more effectively.

Customer Segmentation and Best Customers

The dataset was further analyzed to categorize customers based on their order frequency and total purchase value. Identifying the top customers helped highlight key clients who contribute significantly to the company's revenue. Customers were classified into different segments based on their purchasing behavior, such as high-value clients, regular customers, and occasional buyers. This segmentation allowed targeted strategies, such as offering customized services or loyalty incentives, to improve customer retention and engagement.

Product Demand Analysis

Another key focus was identifying the most in-demand products. By analyzing sales data for certificates, calendars, booklets, bookmarks, and other commercial printing materials, the research determined which products had the highest demand. This information is valuable for inventory planning, marketing efforts, and pricing adjustments. The analysis also highlighted underperforming products, enabling the company to consider discontinuation or redesigning certain offerings.

Internal Company Orders and Cost Variations

In addition to external customer orders, the study also examined internal company orders to understand cost variations. Many company departments place internal printing orders for various materials. By analyzing these internal transactions, it was possible to identify patterns in cost allocation and resource usage. This information helped evaluate operational efficiency and cost-saving opportunities.

2.3.2. Strategic Business Analysis Frameworks

Strategic business analysis was conducted using SWOT Analysis to assess the internal and external factors influencing the Commercial Printing Division. The SWOT Analysis identified the strengths, weaknesses, opportunities, and threats affecting the business, providing a comprehensive understanding of its current position. This framework approach allowed for a holistic evaluation, ensuring that the strategies developed were data-driven and aligned with both internal capabilities and external market dynamics

2.4. Dashboard Development and Visualization

To enhance decision-making and provide a comprehensive view of the Commercial Printing Division's performance, a data visualization dashboard was developed using Power BI. The dashboard consolidates key business metrics, enabling management to track revenue trends, customer behavior, product demand, and seasonal sales patterns. Since no prior digital system existed, this initiative was crucial for transforming raw data into actionable insights.

The dashboard was designed to include sales analysis, customer segmentation, and order trends, helping to identify the most profitable months, top customers, and best-selling products. It also provides comparative insights into internal and external printing orders, assisting in strategic planning. Power BI's interactive features allow for real-time data exploration, improving forecasting and operational efficiency.

3. Result

3.1. Data Entry System

As part of the strategic development for revenue growth in the commercial printing division of Wijeya Newspaper Ltd, the system was designed to improve data accuracy, reduce manual workload, and enhance operational efficiency. The system enables employees to efficiently record and track both internal and external commercial printing orders separately. It features an interactive interface where users can type order no, job no, customer name, and delivery dates and select the type of product and client category with relevant input fields dynamically adjusting based on the selection. Additionally, the system automates calculations for total price, discounts, and VAT, while all data is stored in Google Sheets for easy retrieval and analysis.

Following its implementation, employees began using the system for real-time order entry, which significantly reduced reliance on manual spreadsheets. Initial feedback from staff indicated improved efficiency, with faster data entry and retrieval processes, reduced errors in pricing calculations, and better tracking of order volumes and customer trends.

Figure 2 - Data Entry System (External Orders Frontend)

Figure 3 - Data Entry System (Internal Orders Frontend)

The data entered through the system is stored in two separate Google Sheets (External Orders and Internal Orders), ensuring structured and organized data management (Figure 4). This setup facilitates real-time data accessibility and improved accuracy while enhancing employee efficiency.

Figure 4- Data Store Sheet (Google Spread Sheet)

3.2. Data analysis

3.2.1. Trend Analysis
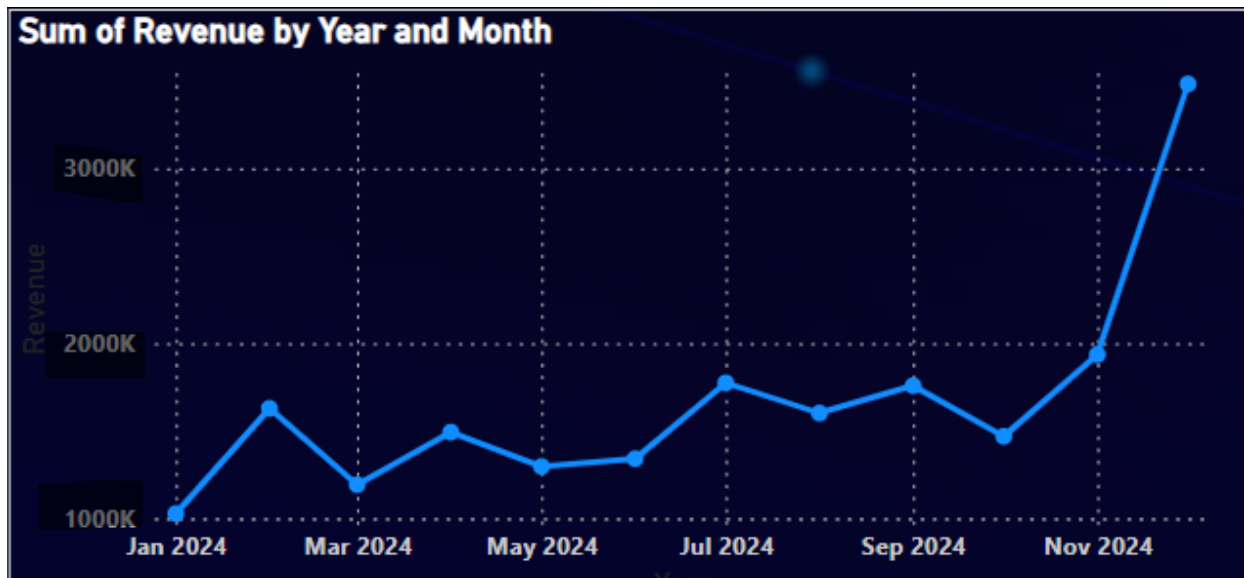
Figure 5 - Revenue Pattern for 2024

Figure 5 shows that the revenue trend for 2024 follows a seasonal upward pattern. This sharp increase suggests a seasonal influence, a strategic business decision, or external market factors driving growth. The overall pattern will indicate periodic fluctuations but maintain a positive long-term trend, with significant growth toward the end of the year.

To further understand this pattern, a detailed analysis will be conducted based on product categories and customer segments. This analysis will help identify which products contribute most to revenue growth and which customer groups drive seasonal fluctuations. By examining revenue trends product-wise and customer-wise, the study aims to uncover key factors influencing sales performance and strategic opportunities for further revenue optimization.

3.2.2. Customer Analysis

Analysis of Figure 6 indicates that the commercial printing division had only 13 customers in the previous year, which is insufficient for sustainable revenue growth. Additionally, Figure 7 categorizes clients based on their respective industries. The data reveals that 70.9% of revenue is generated from supermarkets, while 19.8% comes from the manufacturing sector.

Figure 6 - Client Base

Figure 7 - Client Category

This concentration suggests the need for strategic initiatives to expand the client base and develop targeted strategies to enhance engagement with supermarkets and manufacturing businesses.

3.2.3. Product Analysis
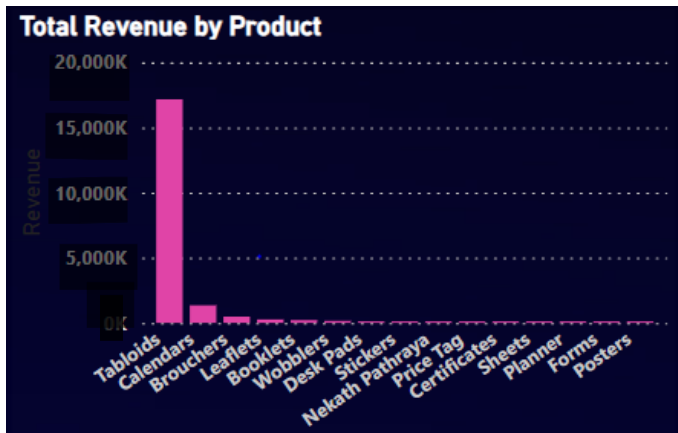
Figure 8 - Products Analysis
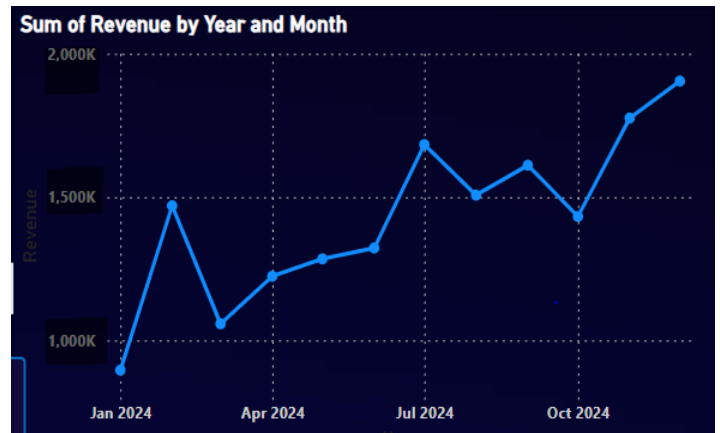
Figure 9 - Tabloids Trend Pattern for 2024

Figure 8 and Figure 9 highlights the demand trends of commercial printing products over the past year and illustrates that tabloids have been consistently ordered every month, making it the most in-demand product in 2024. So, need for Strategies To expand the Client base for tabloids.

Product ▼	Revenue
Imashi Prakashana	1,274,513.70
Jaykay Marketing	9,105,384.32
Richard Pieris	2,017,396.80
SPAR SL (Pvt) Ltd	4,772,301.60
Grand Total	**17,169,596.42**

Figure 10 – Clients for Tabloids

Total Revenue by Customer Category

1.27M (7.42%)
2.02M (11.75%)
13.88M (80.83%)

Customer Category
● Supermarket
● Manufacturing
● Publishing
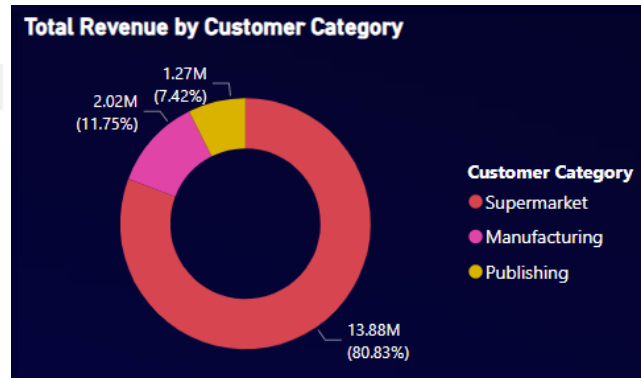
Figure 11- Customer Category for Tabloids

The analysis reveals that tabloids are the most in-demand product; however, orders are currently limited to only four clients, with supermarkets contributing the highest revenue among them. This indicates an opportunity to expand the customer base for tabloids beyond the existing clients. Additionally, to enhance overall revenue, there is a need to increase the demand for other printing products. (such as leaflets, certificates, booklets, brochures, wobblers, desk pads, greeting cards, and invitation cards) among the current client base.

Month	Dec-24	▼
Product ▼	**Sum of Net Value**	
Brouchers	103,093.68	
Calendars	1,312,000.00	
Desk Pads	81,888.48	
Leaflets	47,112.28	
Planner	25,452.80	
Sheets	6,493.88	
Tabloids	1,904,712.65	
Grand Total	**3,480,753.76**	

Figure 12 - Products of December

Product ▼	Revenue
ACL Cables	1,312,000.00
LHPP	37,523.20
Grand Total	**1,349,523.20**

Figure 13 - Calendar Orders

According to Figure 5, there is a noticeable increase in revenue in December. Further analysis reveals that this surge is primarily attributed to calendar orders placed during that month (Figure 12), although it is specifically due to just two large orders (Figure 13). This suggests that seasonal demand, particularly for calendars, has a significant impact on revenue growth during this period. Therefore, identifying additional seasonal products and developing strategic approaches to promote these products among clients could contribute to further revenue enhancement.

3.2.4. SWOT Analysis

A SWOT analysis was conducted to evaluate the strengths, weaknesses, opportunities, and threats related to the commercial printing division in company. This analysis provides insights into the company's current position and potential areas for strategic improvement.

STRENGTHS
- Strong reputation in Sri Lanka's printing industry
- Experienced employees ensure high-quality output
- Strong Corporate & Institutional Clients
- Having digital printing technologies in Kandy branch
- High-Quality Printing Technology
- advanced online ordering system (but it is not used)
- Having Transport

WEAKNESSES
- Rising raw material costs (paper, ink)
- Limited Eco-Friendly Printing Initiatives
- The company mostly prints physical materials

OPPORTUNITIES
- Clients prefer sustainable materials and inks
- Working with businesses that need a lot of printing can help keep earnings stable
- High demand for personalized items

THREATS
- in-house corporate printing, increase competition.
- Paper, ink, and delivery costs change due to inflation and import limits.
- People prefer digital over print, lowering demand for traditional printing.
- Regulatory & Environmental Policies

Figure 14 - SWOT Analysis for Company

This analysis provides a foundational basis for strategic decision-making by enabling the organization to leverage its strengths, address its weaknesses, capitalize on emerging opportunities, and mitigate potential threats

3.3. Strategies

1. Promote commercial printing services to existing newspaper advertisers through bundled offers, cross-promotional discounts, and customized printing packages for advertisers to encourage bulk orders. So, we can inform our advertising clients through marketing executives and SPOs. And if we can, we can give some incentive (x%) per order.
2. We can encourage long-term partnerships and look after existing clients by providing flexible service options like express printing, design consultations, and post-printing services and introduce competitive pricing models with bulk discounts for high-volume customers.
3. Develop exclusive printing solutions like branded packaging, promotional materials, product labels, instruction manuals, custom packaging, and seasonal marketing collateral.

such as New Year gifts (greeting cards, Calendars, Diaries, corporate gifts), school essentials (notebooks, report cards, exam papers), and election materials (posters, banners, flyers). Launch targeted promotions through social media and newspaper ads at least one month in advance to maximize visibility and early sales.

4. Enhance online marketing through social media promotions. We can develop printing web pages and maintain digital advertising (Fb, Instagram pages) to attract new clients and showcase successful projects. We can also activate and promote the existing advanced online ordering system to streamline customer orders and improve convenience.

5. Introduce recyclable paper, soy-based inks, and eco-friendly printing techniques to attract more customers. Create a "green printing" brand identity, Introduce recycled paper options and vegetable-based inks. Promote sustainability certifications for credibility.

6. Expand seasonal product offerings by introducing customized corporate calendars with branding options and personalized calendars or diaries for individuals or couples.
    Ex: We can introduce family calendars and table calendars as gifts. But these are not bulk orders. So, we must use social media to increase our client base and pay special attention to that.

7. Build a client database to send reorder reminders before peak seasons. Drive early sales through targeted promotions, early-bird discounts before November, bulk order incentives, and a subscription-based pre-order system to ensure recurring sales.

8. We offer personalized corporate printing and limited-edition themed tabloids for special events. Develop industry-specific tabloids (e.g., sports, fashion, finance, health) and Target small businesses, event organizers, and political campaigns needing frequent tabloid printing

9. Provide discounts for large-volume orders to encourage bulk printing

10. We can use the existing transport network to offer delivery services for printed materials, increasing customer satisfaction.

11. We offer specialized finishes, high-quality prints, and design assistance that in-house corporate printing cannot provide. because of our company has high printing technologies already.
12. Provide hybrid solutions that integrate printed and digital marketing materials to adapt to Market Trends & Digital Preferences (e.g., QR codes on prints, augmented reality-enabled prints).

13. Introduce customizable print solutions such as personalized packaging, greeting cards, new business labels, price tags, and corporate gifts to cater to niche markets.

14. We had been advertised articles authors, artists, and businessmen in newspapers. We can get orders to print their books, novels, and magazines by discussing that people.

15. Conducting feedback surveys helps identify areas for improvement in print quality, pricing, service speed, and customer experience. Using online forms, and follow-up calls ensures valuable insights

3.4. Visualization Dashboard

To support data-driven decision-making, a Power BI dashboard was developed to enhance future strategic planning. This dashboard plays a crucial role in ensuring informed decision-making for the company's success. By leveraging these dashboards, the company can monitor sales trends, identify growth opportunities, and develop targeted strategies to improve revenue and operational efficiency.

The system includes two dashboards:

1. **External Orders Visualization Dashboard** - Focused on analyzing commercial printing orders from external clients, which is the sole source of revenue generation.
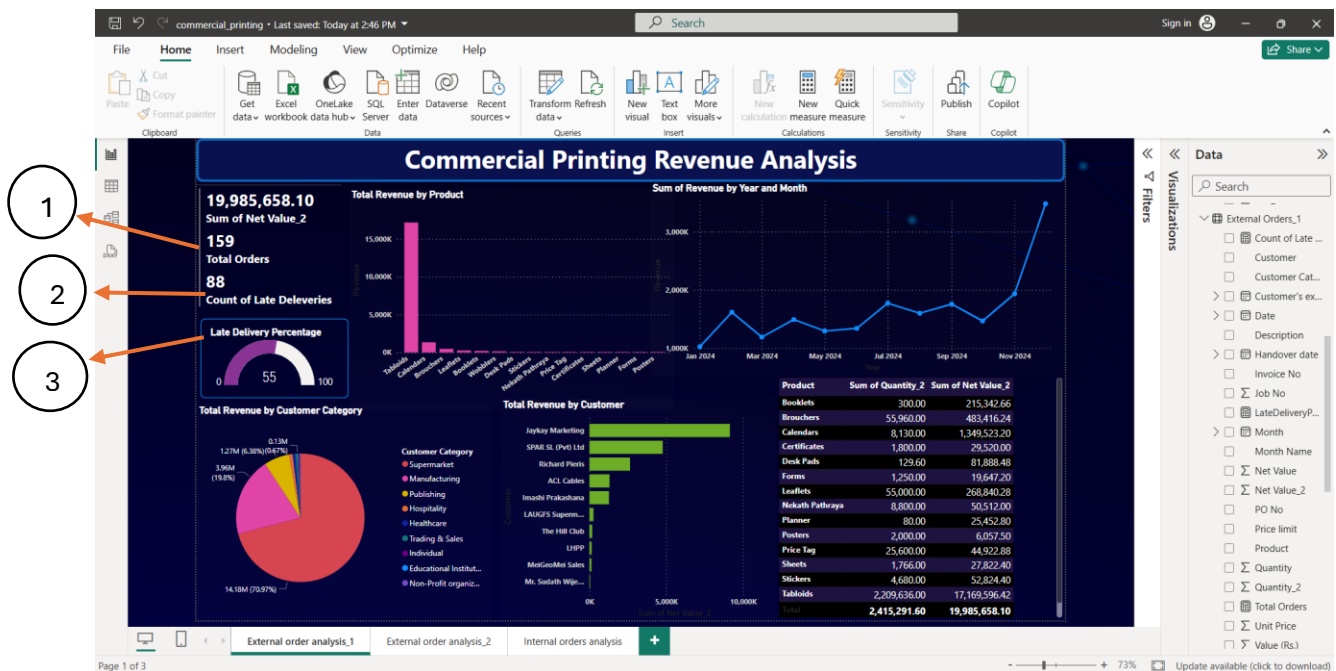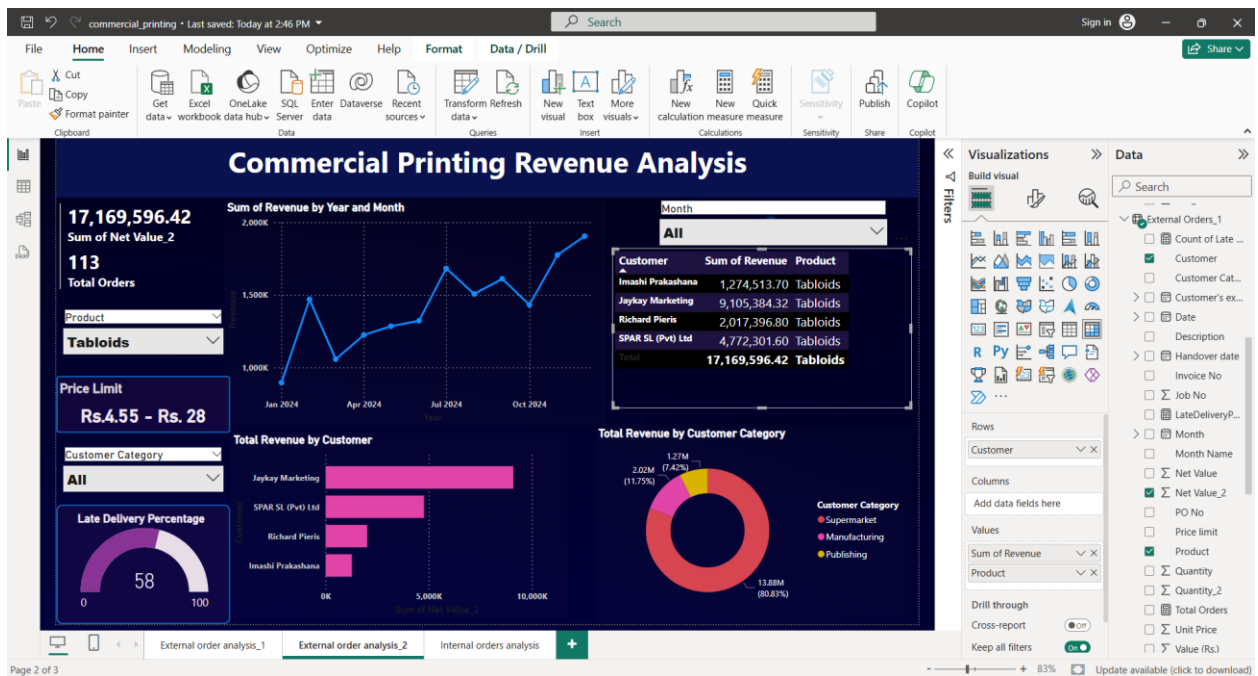
Figure 15 - External Orders Visualization Dashboards

2. **Internal Orders Visualization Dashboard** - Designed to track and manage the company's own printing orders, helping to optimize resource allocation and internal operations.
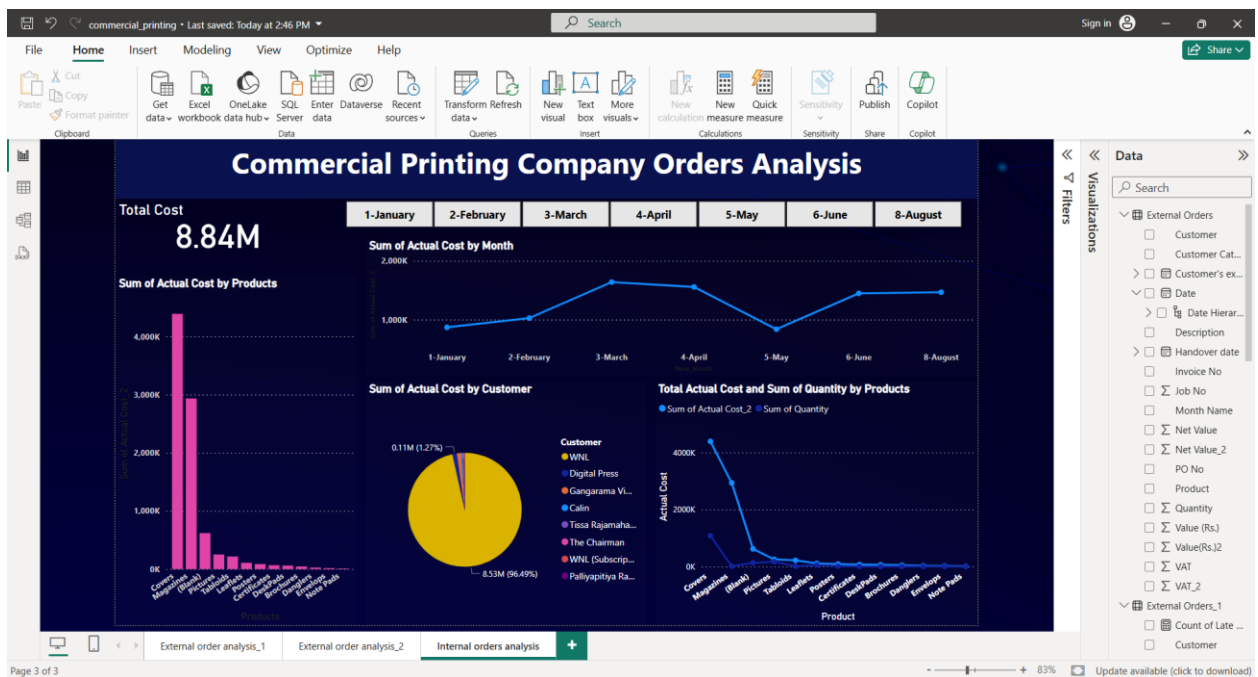
Figure 16- Internal Orders Visualization Dashboard

4. Discussion

The strategies outlined in this research are essential for the growth and sustainability of Wijeya Newspaper Ltd.'s commercial printing division. Given the company's established reputation and extensive customer base in newspaper advertising, leveraging these resources effectively can drive significant revenue growth. Promoting printing services to existing advertisers through bundled offers and cross-promotional discounts will create a seamless transition for clients to engage in commercial printing. Additionally, building strong relationships with customers by offering value-added services such as express printing, design consultations, and competitive bulk pricing ensures long-term partnerships. Implementing sustainable printing solutions, including the use of recyclable materials and eco-friendly inks, not only aligns with global environmental trends but also enhances the company's brand image, attracting eco-conscious clients.

Digital transformation is another critical component of these strategies, enabling the company to reach new clients and streamline operations. By strengthening its online presence through social media promotions and a dedicated digital ordering platform, Wijeya Newspaper Ltd. can enhance customer convenience and engagement. Additionally, utilizing targeted online marketing campaigns and pre-order systems will help secure early sales and manage production schedules efficiently. Expanding product offerings to include seasonal items, corporate gifts, and customized printing solutions, along with the use of hybrid marketing techniques like QR codes on printed materials, will ensure adaptability to evolving customer needs and digital trends. The integration of an advanced customer database will further support personalized marketing efforts, driving repeat business through automated reorder reminders and loyalty incentives.

To successfully implement these strategies, a structured approach is necessary, involving a dedicated team for execution, continuous market analysis, and customer feedback integration. Regular assessment of promotional campaigns, pricing strategies, and service efficiency will be crucial in refining operations and maximizing profitability. Leveraging the company's existing transport network to facilitate deliveries can enhance customer satisfaction, while offering superior print quality and unique design capabilities will differentiate Wijeya Newspapers Ltd. from competitors. Ultimately, by adopting these comprehensive strategies, the company will position itself as a leader in the commercial printing sector, driving sustainable revenue growth while maintaining a strong competitive edge in the industry.

Based on the identified issues within the company, implementing a data entry system and a data visualization dashboard is crucial for the division. A data entry system is essential for ensuring accurate data input, reducing manual workload, and improving operational efficiency. Such a system can be developed at any time as needed. Meanwhile, a data visualization dashboard plays a vital role in facilitating management decisions and supporting effective data analysis. Together, these tools are key components for driving the division's success.

The biggest challenge I faced was the lack of structured data information, which was scattered across manual records and inconsistent Excel sheets, often missing key details such as cost, unit price. also included not suitable data. As a result, I had to clean and standardize the dataset before conducting a meaningful analysis.

According to industry reports, Sri Lanka's printing market is projected to grow at a compound annual growth rate (CAGR) of 6.5% from 2025 to 2031, driven by technological advancements and increasing demand from key sectors such as packaging, advertising, and publishing (6wresearch, 2020). Digital printing is gaining significant traction due to its cost-effectiveness, faster turnaround times, and customization capabilities. Additionally, the growth of e-commerce has fueled the demand for printed materials, particularly labels and packaging.

On a global scale, the commercial printing market was valued at USD 501.36 billion in 2024 and is expected to grow at a CAGR of 3.2% from 2025 to 2030 (Commercial Printing Industry, n.d.; Spherical Insights, 2023). Companies are increasingly investing in inkjet printers to enhance their service offerings and provide personalized packaging solutions for brand promotions and seasonal campaigns. The demand for printing on packaging and labels, especially for pharmaceuticals, tobacco, turmeric powder, and alcoholic beverages is also on the rise.

Digital commercial printers are rapidly adopting modern technologies to improve packaging print quality, including the use of Quick Response (QR) codes, which have become a standard feature in product packaging. This presents opportunities to accept labeling and packaging orders from emerging online businesses, retail sectors (e.g., cinnamon, pepper), cake businesses, and even customized cash tag orders for textile companies.

Based on these insights, it is recommended that commercial and digital printing operations be managed in parallel. With the necessary digital printing resources already available at another branch, these strategies can be implemented there as well. Furthermore, targeted marketing efforts can be used to promote labeling and packaging services to new market segments.

5. Conclusion

The research undertaken on the Strategic Analysis and Development for Revenue Growth in the Commercial Printing Division of Wijeya Newspapers Ltd. has highlighted the significant potential for transformation within the division through data-driven decision-making, process optimization, and strategic diversification. The findings reveal that while the division holds a strong foundation in terms of infrastructure and a loyal customer base from its core newspaper operations, it has been underutilizing modern tools and strategic planning required for growth in an increasingly competitive and technology-driven market.

One of the key insights from the research is the absence of a centralized data management system, which has hindered accurate tracking, forecasting, and decision-making. To address this gap, a functional data entry system was developed along with a dynamic Power BI dashboard to support real-time data visualization and strategic planning. These tools not only provide a basis for efficient data collection and operational analysis but also serve as a foundation for a future business intelligence framework within the division.

Furthermore, external market analysis shows promising trends both locally and globally. Sri Lanka's commercial printing industry is expected to grow at a CAGR of 6.5%, driven by technological advancements and increasing demand in packaging, advertising, and publishing. Globally, digital printing is on the rise due to its customization and cost-efficiency, indicating a strong opportunity for Wijeya Newspapers Ltd. to position itself competitively by leveraging digital capabilities.

The study also identified several key strategic opportunities, including expanding labeling and packaging services for niche markets such as spices, confectionery, and apparel sectors, capitalizing on e-commerce growth, and offering QR code-enabled packaging solutions. The availability of digital printing infrastructure at another branch presents a timely opportunity to scale such initiatives without significant capital expenditure.

In conclusion, the commercial printing division stands at a strategic inflection point. By adopting the proposed data systems, enhancing digital printing services, and implementing targeted marketing strategies, the division can transition from a traditional support function to a major revenue-generating arm of the company. This research not only presents a roadmap for sustainable revenue growth but also demonstrates how strategic thinking and data analytics can drive organizational transformation. Continued investment in these areas will ensure that the division remains agile, competitive, and aligned with future industry trends.

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7. Annexure

7.1. Data Entry System (Front-end Code)

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Commercial Printing Orders System</title>
    <style>
        body {
            font-family: Arial, sans-serif;
            background-color: grey;
            margin: 20px;
        }
        .container {
            max-width: 900px;
            margin: auto;
            background: white;
            padding: 20px;
            border-radius: 8px;
            box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
        }
        .header {
            background-color: rgb(123, 123, 222);
            color: black;
            font-size: 24px;
            font-weight: bold;
            text-align: center;
            padding: 15px;
            border-radius: 8px 8px 0 0;
        }
        label {
            background-color: rgb(167, 213, 235);
            font-weight: bold;
            display: block;
            margin-top: 10px;
        }
        input, select, button {
            width: 100%;
            padding: 8px;
            margin-top: 5px;
        }
        .form-group {
            display: flex;
            justify-content: space-between;
        }
        .column {
            width: 48%;
        }
        .hidden {
            display: none;
        }
        button {
            padding: 10px 15px;
            border: none;
            border-radius: 5px;
            background-color: #007BFF;
            color: white;
            cursor: pointer;
            margin: 5px;
        }
        button:hover {
            background-color: #0056b3;
        }
        .button-group {
```

```css
            display: flex;
            justify-content: space-between; /* Distributes buttons evenly */
            gap: 10px; /* Adds spacing between buttons */
            flex-wrap: wrap; /* Prevents overflow on smaller screens */
        }

        .button-group button {
            flex: 1; /* Ensures equal width */
            padding: 10px;
            text-align: center;
        }
        .button-group button {
            flex: 1; /* Make buttons equal width */
            padding: 10px;
            text-align: center;
            white-space: nowrap; /* Prevent text from wrapping */
        }

    </style>
</head>
<body>
    <div class="container">
        <div class="header">Commercial Printing Orders System</div>
        <label>Order Type:</label>
        <select id="orderType" onchange="toggleOrderFields()">
            <option value="internal" >Internal Order</option>
            <option value="external" >External Order</option>
        </select>

        <div id="internalOrderForm" style="display: none;">
            <label>Job No:</label><input type="text" id="intJobNo">
            <label>Date:</label><input type="date" id="intDate">
            <label>Customer:</label><input type="text" id="intCustomer">
            <label>Description:</label><input type="text" id="intDescription">
            <label>Product:</label>
            <select id="intProduct">
                <option value="">--Select Product--</option>
                <option value="Visiting Cards">Visiting Cards</option>
                <option value="Bookmarks">Bookmarks</option>
                <option value="Certificate">Certificate</option>
                <option value="Filecovers">Filecovers</option>
                <option value="Greeting Cards">Greeting Cards</option>
                <option value="Invitation Cards">Invitation Cards</option>
                <option value="Letterheads">Letterheads</option>
                <option value="Brochures">Brochures</option>
                <option value="Calendars">Calendars</option>
                <option value="Magazines">Magazines</option>
                <option value="Posters">Posters</option>
                <option value="Leaflets">Leaflets</option>
                <option value="Postcards">Postcards</option>
                <option value="Catalogs">Catalogs</option>
                <option value="Flyers">Flyers</option>
                <option value="Event Tickets">Event Tickets</option>
                <option value="Pictures">Pictures</option>
                <option value="Covers">Covers</option>
                <option value="Label Printing">Label Printing</option>
                <option value="Envelops">Envelops</option>
                <option value="Tabloids">Tabbloids</option>
            </select>
            <label>Actual Cost:</label><input type="number" id="intActualCost">
            <!-- <button onclick="submitOrder()">Enter Order</button> -->
            <div class="button-group">

                <button onclick="submitOrder()">Enter Order</button>
                <button type="button" onclick="searchData()">Search Data</button>
                <button type="button" onclick="updateData()">Update Data</button>
                <button type="button" onclick="clearFields()">Clear Fields</button>
            </div>
        </div>
```

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```html
<!-- <div class="button-group">

    <button onclick="submitOrder()">Enter Order</button>
    <button type="button" onclick="searchData()">Search Data</button>
    <button type="button" onclick="updateData()">Update Data</button>
    <button type="button" onclick="clearFields()">Clear Fields</button>
</div> -->

<div id="externalOrderForm" style="display: none;">
    <div class="form-group">
        <div class="column">
            <label>Job No:</label><input type="text" id="extJobNo">
            <label>Client:</label><input type="text" id="extClient">
            <label>Date:</label><input type="date" id="extDate">
            <label>Delivery Date:</label><input type="date" id="extDeliveryDate">
            <label>Unit Price:</label><input type="number" id="extUnitPrice">
            <label>Discount (%):</label><input type="number" id="extDiscount">
            <label>VAT (%):</label><input type="number" id="extVAT">
            <!-- <button onclick="calculateTotalPrice()">Calculate Total Price</button> -->
        </div>
        <div class="column">
            <label>Invoice No:</label><input type="text" id="extInvoiceNo">
            <label>Client Category:</label>
            <select id="clientCategory">
                <option value="">--Select Category--</option>
                <option value="Manufacturing">Manufacturing</option>
                <option value="Publishing">Publishing</option>
                <option value="Supermarkets">Supermarkets</option>
                <option value="Education Institution">Education Institution</option>
                <option value="Healthcare">Healthcare</option>
                <option value="Individual">Individual</option>
                <option value="Non-Profit Organization">Non-Profit Organization</option>
                <option value="Hospitality">Hospitality</option>
                <option value="Others">Others</option>
            </select>
            <label>Product:</label>
            <select id="extproduct">
                <option value="">--Select Product--</option>
                <option value="Visiting Cards">Visiting Cards</option>
                <option value="Bookmarks">Bookmarks</option>
                <option value="Certificate">Certificate</option>
                <option value="Filecovers">Filecovers</option>
                <option value="Greeting Cards">Greeting Cards</option>
                <option value="Invitation Cards">Invitation Cards</option>
                <option value="Letterheads">Letterheads</option>
                <option value="Brochures">Brochures</option>
                <option value="Calendars">Calendars</option>
                <option value="Magazines">Magazines</option>
                <option value="Posters">Posters</option>
                <option value="Leaflets">Leaflets</option>
                <option value="Postcards">Postcards</option>
                <option value="Catalogs">Catalogs</option>
                <option value="Flyers">Flyers</option>
                <option value="Event Tickets">Event Tickets</option>
                <option value="Label Printing">Label Printing</option>
            </select>
            <label>Handover Date:</label><input type="date" id="extHandoverDate">
            <label>Quantity:</label><input type="number" id="extQuantity">
            <label>Description:</label><input type="text" id="extDescription">
            <label>Total Price:</label><input type="number" id="extTotalPrice" readonly>
            <!-- <button onclick="submitOrder()">Enter Order</button> -->

        </div>

    </div>
    <div class="button-group">
        <button onclick="calculateTotalPrice()">Calculate Total Price</button>
        <button onclick="submitOrder()">Enter Order</button>
        <button type="button" onclick="searchData()">Search Data</button>
```

```html
            <button type="button" onclick="updateData()">Update Data</button>
            <button onclick="clearFields()">Clear Fields</button>
        </div>
    </div>

    <!-- <button onclick="submitOrder()">Enter Order</button> -->
</div>

<script>
    document.getElementById("orderType").addEventListener("change", function() {
        document.getElementById("internalForm").classList.toggle("hidden", this.value !== "internal");
        document.getElementById("externalForm").classList.toggle("hidden", this.value !== "external");
    });
///////////
    function toggleOrderFields() {
        let orderType = document.getElementById("orderType").value;
        let internalForm = document.getElementById("internalOrderForm");
        let externalForm = document.getElementById("externalOrderForm");

        if (orderType === "internal") {
            internalForm.style.display = "block";
            externalForm.style.display = "none";
        } else {
            internalForm.style.display = "none";
            externalForm.style.display = "block";
        }
    }
////////
    function calculateTotalPrice() {
        var unitPrice = parseFloat(document.getElementById("extUnitPrice").value) || 0;
        var quantity = parseFloat(document.getElementById("extQuantity").value) || 0;
        var discount = parseFloat(document.getElementById("extDiscount").value) || 0;
        var vat = parseFloat(document.getElementById("extVAT").value) || 0;

        var subtotal = unitPrice * quantity;
        var discountAmount = (subtotal * discount) / 100;
        var vatAmount = ((subtotal - discountAmount) * vat) / 100;
        var totalPrice = subtotal - discountAmount + vatAmount;

        document.getElementById("extTotalPrice").value = totalPrice.toFixed(2);
    }


    function submitOrder() {
        var orderType = document.getElementById("orderType").value;
        var data = { orderType };

        if (orderType === "internal") {
            data.jobNo = document.getElementById("intJobNo").value;
            data.date = document.getElementById("intDate").value;
            data.customer = document.getElementById("intCustomer").value;
            data.description = document.getElementById("intDescription").value;
            data.product = document.getElementById("intProduct").value;
            data.actualCost = document.getElementById("intActualCost").value;
        } else {

            data.jobNo = document.getElementById("extJobNo").value;
            data.invoiceNo = document.getElementById("extInvoiceNo").value;
            data.client = document.getElementById("extClient").value;
            data.clientCategory = document.getElementById("clientCategory").value;
            data.date = document.getElementById("extDate").value;
            data.product = document.getElementById("extproduct").value;
            data.deliveryDate = document.getElementById("extDeliveryDate").value;
            data.handoverDate = document.getElementById("extHandoverDate").value;
            data.unitPrice = document.getElementById("extUnitPrice").value;
            data.quantity = document.getElementById("extQuantity").value;
            data.discount = document.getElementById("extDiscount").value;
            data.vat = document.getElementById("extVAT").value;
            data.totalPrice = document.getElementById("extTotalPrice").value;
```

```
            data.description = document.getElementById("extDescription").value;


        }

            fetch("https://script.google.com/macros/s/AKfycbwsaR8s2lLNbNM3hfYgUH6yWgSAwo8i4W5BwR9I2MW_xAXQ
gP7qWSo897DAIxbWL53G/exec", { method: "POST", body: JSON.stringify(data)})
            .then(response => response.json()) // Assuming the server returns a JSON response
            .then(result => {
                if (result.status === "success") {
                    alert("Order successfully stored in the data sheet!");
                } else {
                    alert("Failed to store order. Please try again.");
                }
            })
            .catch(error => {
                alert("Error: " + error.message);
            });

        }
        function clearFields() {
    // Select all input fields and textareas in the form
            document.querySelectorAll("input, textarea, select").forEach(field => {
                if (field.type === "checkbox" || field.type === "radio") {
                    field.checked = false; // Uncheck checkboxes and radio buttons
                } else {
                    field.value = ""; // Clear text, number, and other input fields
                }
            });
        }
    </script>
</body>
</html>
```

7.2. App Script Code

```
function doPost(e) {
  var data = JSON.parse(e.postData.contents);
  var sheetId = "1YqHpuseEbn1dC0XHupGbhMCiWM3Dkpkf52BzqtfnQ9s";  // Replace with your actual
Google Sheet ID
  var sheet;

  try {
    var ss = SpreadsheetApp.openById(sheetId);

    if (data.orderType === "internal") {
      sheet = ss.getSheetByName("Internal Orders");

      if (!sheet) {
        Logger.log("Error: 'Internal Orders' sheet not found.");
        return ContentService.createTextOutput(JSON.stringify({ status: "error", message:
"'Internal Orders' sheet not found." }))
          .setMimeType(ContentService.MimeType.JSON);
      }
      sheet.appendRow([
        data.jobNo, data.date, data.customer, data.description, data.product, data.actualCost
      ]);
      Logger.log("Internal order stored successfully.");
      return ContentService.createTextOutput(JSON.stringify({ status: "success", message: "Entry
is successful" }))
        .setMimeType(ContentService.MimeType.JSON);
    }
```

```
    else if (data.orderType === "external") {
      sheet = ss.getSheetByName("External Orders");
      if (!sheet) {
        Logger.log("Error: 'External Orders' sheet not found.");
        return ContentService.createTextOutput(JSON.stringify({ status: "error", message:
"'External Orders' sheet not found." }))
          .setMimeType(ContentService.MimeType.JSON);
      }
      sheet.appendRow([
        data.jobNo, data.invoiceNo, data.client, data.clientCategory, data.date, data.product,
        data.deliveryDate, data.handoverDate, data.unitPrice, data.quantity, data.discount,
        data.vat, data.totalPrice, data.description
      ]);
      Logger.log("External order stored successfully.");
      return ContentService.createTextOutput(JSON.stringify({ status: "success", message: "Entry
is successful" }))
        .setMimeType(ContentService.MimeType.JSON);
    }

    else {
      Logger.log("Error: Invalid order type - " + data.orderType);
      return ContentService.createTextOutput(JSON.stringify({ status: "error", message: "Invalid
order type" }))
        .setMimeType(ContentService.MimeType.JSON);
    }

  } catch (err) {
    Logger.log("Error: " + err.message);
    return ContentService.createTextOutput(JSON.stringify({ status: "error", message: err.message
}))
      .setMimeType(ContentService.MimeType.JSON);
  }
}
```

7.3. Power BI Dax Quary

1. Total Orders = COUNT('External Orders_1'[Job No])

2. Count of Late Deleveries = COUNTROWS(FILTER('External Orders', 'External
   Orders'[Handover date] > 'External Orders'[Customer's expected delevery date]))

3. LateDeliveryPercentage = DIVIDE([Count of Late Deleveries], [Total Orders], 0) * 100