Assessing BI Maturity and Developing a BI Dashboard For a Small and Medium Enterprise (SME) In Nairobi: Case of Baraka Hygienics Solutions

Chesia Anyika - 665567
Neema Ndanu - 666457
Diana Nduku - 665419
Zak Hussein - 665619

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Table of Contents

Executive Summary

This project, part of the DSA 3050 coursework at USIU-A, aimed to assess the Business Intelligence (BI) maturity of Baraka Hygienics, a female-owned manufacturing company based in Mombasa, Kenya. The project focused on evaluating the company's current BI capabilities, developing a BI report and dashboard, and providing actionable insights to improve decision-making processes.

Founded in June 2023, Baraka Hygienics produces a range of eco-friendly cleaning products. Despite its recent establishment, the company shows significant growth potential through enhanced BI practices. Our assessment, based on the Capability Maturity Model Integration (CMMI), indicated that the company is currently at the Initial/Ad-hoc stage in all BI categories, highlighting the need for structured BI processes and tools.

We conducted a comprehensive BI maturity assessment, developed a BI dashboard using Google Sheets, and provided recommendations to elevate their BI maturity to the Developing level. Key findings included the necessity for standardised data documentation, the introduction of reporting and dashboard tools, and the establishment of BI governance.

Through data exploration and analysis, we identified key trends in sales and expenses, which informed our creation of a predictive model for future sales and strategies for cost management optimization. Our final deliverables include a detailed BI report, an interactive dashboard, and a user manual to support the company's ongoing BI development.

This project not only enhances Baraka Hygienics' BI capabilities but also equips us with practical skills in BI assessment, data analysis, and dashboard development, aligning with USIU's mission to foster higher-order thinking and career preparedness.

1.0 Introduction

The project is part of the coursework for DSA 3050 at USIU-A. Through this project, we will gain valuable insights into research, assess the Business Intelligence (BI) maturity levels at Baraka Hygienics, develop a BI report and dashboard, perform data analysis and exploration, and create PowerPoint presentations. Additionally, the project aims to equip us with soft skills such as verbal presentations, teamwork, and interviewing techniques. Our goal is to develop a practical and valuable BI report that can be easily implemented by the company to improve their decision-making capabilities, business processes, and foster growth. This project will solidify the theory we've learned in class, providing us with invaluable, practical skills applicable at the industry level. It aligns with USIU's mission to promote higher-order thinking, literacy, and career preparedness.

Business Intelligence (BI) is a game-changer for SMEs. It helps business owners make smarter decisions by providing clear, data-driven insights. With BI, you can streamline operations, cut costs, and improve customer service by understanding their needs better. It also gives you a competitive edge by keeping you updated on market trends and showing you how you stack up against competitors. Plus, it supports strategic planning and growth by tracking your progress and forecasting future scenarios. BI simplifies compliance and reporting, making these tasks less time-consuming and more accurate. In short, BI helps SMEs run more smoothly, stay competitive, and grow sustainably.

Our project objectives are:

1. Establish contact with Baraka Hygienics.
2. Request data and conduct an interview to understand their business processes.
3. Create and administer a survey to assess their BI maturity levels.
4. Evaluate the company's BI maturity and develop a detailed report.
5. Perform data exploration and analysis on their sales data, including building a predictive model for June 2024 sales.
6. Develop a comprehensive BI dashboard using Power BI and upload it to GitHub.
7. Create a BI report to address Baraka Hygienics' business needs.
8. Share findings and proposed solutions with the owner for potential adoption.
9. Write a BI documentation/user manual.
10. Prepare and deliver a PowerPoint presentation of our findings to the class

2.0 Selection of SME

Baraka Hygienics is a female-owned manufacturing company based in Kizingo, Mombasa, Kenya. It was founded in June 2023 and currently has 1 permanent employee and 2 freelance employees. They are a one-stop shop for cleaning products ranging from shower gels, multi-purpose soaps, cleaning detergents, neem and aloe bar soaps, to coconut oil & shea butter.

They sell their products locally to both retailers and wholesalers via social media handles (Instagram, WhatsApp, Facebook), word of mouth, and their website (https://barakahygienics.com). The company sets itself apart from the competition by offering low prices, high quality, eco-friendly, and hypoallergenic products, as well as a wide variety of products.

The company operates in the manufacturing industry, sourcing all their raw materials locally. Manufacturing is a key sector in Kenya's economic development, contributing to both national output and exports, and job creation. The sector, which is dominated by subsidiaries of multinational corporations, contributed approximately 7.6% of the Gross Domestic Product (GDP) in 2023. Following the Kenyan Association of Manufacturers, the company operates under the Chemical & Allied sector and the Cosmetics, Personal Care, and Hygiene sub-sector.

The company's target market is both men and women of all ages, given personal hygiene products are a basic necessity. They offer a wide variety of products, including body washes, body oils, and detergents (bleach and liquid cleaning soap).

Our group contacted Elsie Baraka, the owner, through Chesia, a family friend. We sent the official letter from the school to express interest in their business processes , data and BI maturity levels. Through calls, emails, and texts, we learned about the business's history, operations, challenges, and goals. We also sent a questionnaire and conducted a phone interview to gain insight into their BI maturity level. They shared an Excel file of their sales records, allowing us to analyse and understand the business better.

The owner handles the manufacturing and distribution of the products via boda-boda riders and salespersons. Manufacturing takes place at the owner's area of residence and currently 3 products are KEBS certified. For inventory tracking, the owner inspects both raw materials and finished products to decide when to place orders from suppliers or initiate additional manufacturing. Currently, this process is undocumented. Sales are recorded in an Excel file.

3.0 BI Maturity Assessment

3.1 Definition of Terms

Business Intelligence (BI) can be defined as encompassing methodologies, technologies and architectures used to facilitate real-time data analysis and strategic decision making for organisations (Guarda, Santos, Pinto, Augusto, & Silva, 2013). Derived from this definition, BI Maturity refers to the level of sophistication at which an organisation can effectively use and implement BI technologies and processes to improve their decision making and strategic planning practices. Maturity Models are used to concretely assess an organisations BI maturity status, and aid organisations in transitioning from one maturity level to another. A BI maturity model can thus be defined as a framework developed to measure and categorise the BI capabilities of an organisation against established benchmarks (Tan, Cheng, Ren, & Wong, 2019).

3.2 The Capability Maturity Model Integration (CMMI)

Multiple BI maturity models have been developed for this purpose, each with their own strengths and weaknesses. Notable maturity models are the Gartner's BI Maturity Model and the Capability Maturity Model Integration (CMMI), which are widely used by organisations worldwide due to their comprehensive frameworks and proven effectiveness in assessing BI capabilities.

We chose to use the CMMI model, which was developed by researchers at Carnegie Mellon University to help organisations determine where they stand in the maturation process of their business capabilities. The model focuses on appraising individual business processes and assigning them a maturity level, then aggregating these results to give an overall maturity score for the business.

There are numerous advantages associated with implementing the model, namely heightened productivity and efficiency due to the model's focus on standardisation of processes; improved quality of services due to its focus on aligning processes to customer requirements and expectations; improved decision making practices due to its focus on collection and analysis of data to drive insights; stronger risk management due to the model's framework for identifying, analysing and managing potential risks; and promotion of organisational learning and innovation as the model fosters a culture of continuous improvement towards stated goals (Visure Solutions, n.d).

The model assesses the BI capabilities of a business at five levels of maturation, which in ascending order of sophistication are Initial/Ad-hoc, Developing, Defined, Managed and

Measurable, and Optimised. At the Initial/Ad-hoc stage, BI processes such as reporting are undefined, unstable, reactive and performed on a per-need basis. These BI processes are not considered reliable by key stakeholders in the business. At the Developing stage, there are established repeatable BI processes that are performed at the departmental level, as well as the implementation of basic project management. However, there is little to no inter-departmental collaboration on BI processes. At the Defined stage, documentation and standardisation of BI processes is practised throughout the enterprise, driving consistent and reliable BI processes that are trusted by key stakeholders within the business. There is also championing of the use of BI by key executives in the business. At the Managed and Measurable stage, BI processes inform quantitative measurement and assessment of KPI's, which enable data-driven decision making at an enterprise wide level, and among key executives. The performance and value addition of the BI process is also tangibly measured. At the Optimised stage, BI is baked into the culture of the organisation, and is considered as part of the business strategy. This stage focuses on the continuous improvement of business practices, with BI being the backbone of proactive process enhancement.

3.3 Assessment of Baraka Hygienics Solutions

The business was assessed across six key categories of BI processes, namely BI Reporting and Insights; BI Products, Services and Technologies; BI Practice Performance Measurement; Stakeholder Engagement and Collaboration in BI; BI Decision Rights and Authority; and lastly BI Program Value Streams. Our group assembled a comprehensive list of assessment questions per category, which we listed in a GoogleSheets workbook, each with a possible rating range from one to five using the CMMI model maturity scale from Initial/Ad-hoc to Optimising. We then created a BI Maturity Assessment Questionnaire with simplified questions to collect responses from Baraka Hygienics on their current BI practices, and used these responses to assign each question listed in the workbook an appropriate rating. Furthermore, we assigned each question a target CMMI rating that the business can strive towards, based on their current BI capabilities and the tools we have created for them.

3.3.1 BI reporting and Insights Assessment

The first category is BI Reporting and Insights, and it describes how well an organisation leverages reporting and insight tools for understanding of data and aiding in decision making. Reports refer to regular updates and summaries of data in the form of tables or charts, while Insights refer to useful information derived from the data.

Our assessment consisted of thirteen statements that focused on business requirements gathering, acquisition and provisioning of datasets, the use of reporting and dashboards, the use of analytical models in reporting as well as security and access management of data. As per the

results of the questionnaire, it was found that the business does not explicitly set business requirement targets, does not utilise reporting and dashboards and do not have set documentation and data quality standards. Furthermore, they do not use analytical models to derive insights from their data.

The business scored an average rating of 1.08, indicating that their capabilities in this category are at the Initial/Ad-hoc level. Their target rating averaged at 2.38, thus the business should strive to reach the Developing level in this category. The main activity to drive BI maturation in this category was identified as developing set standards in terms of data documentation, presentation, quality and pipelines.

3.3.2 BI Products, Services and Technologies Assessment

The second category is BI Products, Services and Technologies, which describes the tools, technologies and softwares an organisation uses in its BI activities. Our assessment consisted of five statements that focused on BI products and services, as well as the technologies used to generate insights.

As per the results of the questionnaire it was found that the business does not utilise BI and reporting tools as well as analytical models to derive insights from their data. Furthermore, data is manually collected and transferred on an inconsistent basis.

The business scored an average rating of 1, indicating that their capabilities are at the Initial/Ad-hoc level. Their target rating averaged at 2, thus the business should strive to reach the Developing evel in this category. The main activity to drive BI maturation in this category was identified as developing a BI maturity assessment framework for the business, and disseminating it to key stakeholders. This has been achieved through the creation of a BI assessment sheet and dashboard using google sheets.

3.3.3 BI Practice Performance Measurement

The third category is BI Practice Performance Measurement, and it describes how well an organisation tracks and measures their BI practice's performance, in terms of meeting business goals as well as the resource intensiveness of the practice. Our assessment consisted of seven statements that focused on BI program adoption, effectiveness and cost.

As per the results of the questionnaire, it was found that the business does not measure the use of BI and reporting, nor do they allocate any expenditure to a BI department. The business scored an average rating of 1, indicating that their capabilities are at the Initial/Ad-hoc level. Their target rating averaged at 2, thus the business should strive to reach the Developing evel in this

category. The main activity to drive BI maturation in this category was identified as developing a basic BI stakeholder map, communicating BI program plans to them and acquiring their feedback.

3.3.4 Stakeholder Engagement and Collaboration in BI

The fourth category is Stakeholder Engagement and Collaboration in BI, which describes the extent at which key stakeholders – people who play an important role in a business's success – interact with and use BI to carry out their roles. Our assessment consisted of nine statements that focused on executive sponsorship of BI, engagement of stakeholders as well as communication and change.

As per the results of the questionnaire, it was found that the business does not have an executive sponsor for a BI program, nor do they have a defined stakeholder map associated with a BI program. The business scored an average rating of 1, indicating that their capabilities are at the Initial/Ad-hoc level. Their target rating averaged at 2, thus the business should strive to reach the Developing level in this category. The main activity to drive BI maturation in this category was identified as establishing the business founder and owner as the executive in charge of BI.

3.3.5 BI Decision Rights and Authority

The fifth category is BI Decision Rights and Authority, and it describes which stakeholders have the power to make decisions based on BI insights, as well as have access to BI tools. Our assessment consisted of five statements that focused on definition of BI program roles, governance of the program as well as risk management.

As per the result of our questionnaire it was found that there are no defined roles or objectives in terms of BI, nor have any risks or controls associated with a BI program been captured. Furthermore, there is no established governance for a BI program. The business scored an average rating of 1, indicating that their capabilities are at the Initial/Ad-hoc level. Their target rating averaged at 2, thus the business should strive to reach the Developing evel in this category.

3.3.6 BI Program Value Streams

The sixth and final category is BI Program Value Streams, which describes how the BI practice will create value for an organisation. Our assessment consisted of six statements that focused on definition of value streams as well as value realisation of the BI program.

As per the result of the questionnaire, it was found that a BI program has never been established at the business, nor have BI capabilities been established as recognised or documented business

capabilities. The business scored an average rating of 1, indicating that their capabilities are at the Initial/Ad-hoc level. Their target rating averaged at 2, thus the business should strive to reach the Developing evel in this category. The main activity to drive BI maturation in this category was identified as developing methods to compare value of investment in a BI program, and value gained from a BI program.

3.3.7 Overall Current and Target Assessment Scores

Overall, the business scored an average CMMI score of 1, indicating that the businesses BI capabilities as a whole are at the Initial/Ad-hoc level. Their target score averaged at 2, thus the business should strive to grow its BI capabilities to the Developing level, using the recommended activities to drive maturation per category.

4.0 Data Identification and Analysis

4.1 Identification of Relevant Data Sources

In the analysis of the SMEs financial performance, several key data sources have been identified. The most critical sources include sales records, and expense records. Sales records offer valuable insights into revenue generation, allowing the identification of best-selling products and seasonal sales variations. Expense records provide a detailed account of costs associated with rent, raw materials, packaging, transport, and internet, which are vital for analysing cost structures and identifying areas for cost optimization.

4.2 Data Exploration and Analysis

Upon exploring the data, several key observations emerged:

- **Rent expenditure** :- Rent is identified as the highest expenditure, significantly impacting the overall cost structure. An interesting finding was the absence of rent payment in December due to an impending relocation, affecting the expense trends for that month.
- **Raw materials** :- Raw material costs are substantial, particularly in months with higher sales volumes like October and December. This surge is linked to the need to replenish inventory to meet the demand generated by a significant tender from Wapek Supply.
- **Packaging and Transport** :- Packaging and transport expenses are also high, correlating with increased production and sales volumes. The necessity to transport large quantities of products further escalates transport costs, especially noticeable in October and April.
- **Internet and other costs** :- Although internet costs are significant, a combined category labelled 'others' (including labour and KRA penalties) appears misleadingly higher in the pie chart due to its composite nature.
- **Additional Expenditures** :- Chicken feed expenses are added as a result or informal business on going that is selling chicken .

4.3 Key Trends, Patterns, and KPIs

Several key trends and patterns were identified in the data:

- **Monthly expense patterns** :- They show notable fluctuations, with rent being a major contributor except in December. A spike in raw material costs in October aligns with increased inventory replenishment activities.
- **Revenue and profit trends:**- They reveal that high-revenue months like October are linked to significant tenders and bulk sales of products like detergents and shea butter.

The decline in profits post-October is attributed to the end of these tenders and the corresponding high sales generated by these tenders compared to other customers.

- **Product sales trends** :- Highlight that shower gels, shea butter, and detergents are consistent high-revenue generators. Implementing mixed product sales strategies, such as selling shower gels alongside 5L Takasa, is recommended to boost profits.
- **Cost management** :- It is suggested to review the 'others' expense category for better clarity, optimise transport costs through efficient logistics planning, and explore cost-saving measures in packaging.
- **Informal activities** :- Activities like selling Ankara and chicken also contribute to high revenue , especially in months of June 2023 and August respectively.
- **Product Placement** :- Products under the category of " others" should be replaced with more profitable items or sold in smaller quantities as they don't generate much revenue. For products that sell higher when together rather than individually it is advisable to place them next to those that generate high profits when bought together.

5.0 BI Report and Dashboard Design

5.1 Definition of Terms

Business Intelligence reporting can be defined as 'the process of using a BI tool to prepare and analyse data to find and share actionable insights'(Qlik, n.d). Some widely used BI tools include Microsoft's PowerBI, Salesforce's Tableau, as well as spreadsheet softwares like GoogleSheets. One effective way of intuitively displaying insights gained from analysing data using the above tools is through the creation of BI dashboards, which are defined as interactive information management and data visualisation solutions that utilise charts, graphs and reports to analyse data, and display these elements in a single pane (Tableau, n.d).

Dashboard reporting has tangible benefits for businesses that use them, as they allow for accessible communication of business critical information at a glance; tracking of Key Performance Indicators (KPIs); enhanced data-driven decision making; identification of pattern changes, outliers and trends; and increased efficiency and visibility of business processes (Yellowfin BI, n.d.).

5.2 Solutions Used for Dashboard Reporting

5.2.1 Google Sheets for BI Maturity Dashboard

Google Sheets is a free to use, cloud-based spreadsheet software that offers businesses tremendous flexibility to organise, store, track, and analyse important company data (Silver, 2013). A Google Sheets Dashboard leverages features such as real-time data analysis and visualisation through charts, graphs and reports to allow businesses to monitor their day to day data, and derive insights from it.

We opted to use Google Sheets to create our BI Maturity Dashboard due to its interactivity, as it allows for the capability to update input data within the spreadsheet, and automatically reflect changes on the dashboard. Furthermore, Google Sheets is very accessible for users who do not have a background using more complex BI software like PowerBI, and the key stakeholders of Baraka Hygienics already use the software to track their data. The software is also cost-effective, as it is free to use without any hidden costs. It also allows for collaboration, as multiple users can access and update the same worksheet.

5.2.2 Streamlit for BI Dashboard

Streamlit is an open-source app framework specifically designed for creating data science and machine learning dashboards. We opted to use Streamlit for our BI Dashboard due to its

simplicity and ease of use, allowing us to build interactive, visually appealing dashboards with minimal coding. Streamlit enables seamless integration with various data sources, which was useful in our data analysis in which we used Python, R, and Power BI to analyse key performance indicators.

Streamlit also supports real-time data updates, ensuring our dashboard always reflects the most current information. Additionally, its flexibility allows us to customise the dashboard to meet the specific needs of our stakeholders at Baraka Hygienics. Streamlit is also highly accessible, making it easy for users without a technical background to interact with and understand the data presented. Moreover, it fosters collaboration by enabling multiple users to contribute to the dashboard's development and maintenance, making it an ideal choice for our project.

5.3 Functionality of the BI Maturity Dashboard.

The Google Sheets workbook we created is called the ‘BI Maturity Assessment Tool’. Within the workbook, there are three spreadsheets, the first being a description of the background and functionality of the tool named ‘Description’, the second being the comprehensive BI assessment questionnaire named ‘BI Maturity State Assessment’ and the third being the BI Maturity Dashboard, named as such.

5.3.1 Component 1: BI Maturity Assessment Score

The BI Maturity Dashboard is linked to the state assessment, as any changes made to the responses of the state assessment are reflected onto the BI dashboard. Within the state assessment, we use the ‘ROUND(AVERAGE())’ function to compute the rounded off average BI score per category. We use named ranges to connect these results to a table on the dashboard, which in turn computes the rounded average score for all categories, yielding an overall BI assessment score.

The computed assessment scores correspond to the levels defined by the CMMI model, on a scale of one to five from Initial/Ad-hoc to Optimised. We used a look-up table to get the corresponding CMMI level using the ‘VLOOKUP()’ function, and displayed this for the current and target state using scorecard charts.

5.3.2 Component 2: Gap Analysis Charts

We used the ‘MINUS()’ function to compute the difference between the target state and current state scores per category, and displayed the results in a table. We then used a side by side bar

chart as well as a radar chart to display the current and target assessment scores per category, to get a more intuitive understanding of the existing gaps in BI capabilities.

5.3.3 Component 3: Activities to Reach Target State

We used the 'UNIQUE()' function to list down the distinct activities stated in the BI State Assessment sheet that would contribute to the business reaching its target maturity level per category. Within this table, we used the 'ARRAY(COUNTIF())' formula to list down the number of times this activity was listed, then used the 'MAX()' and 'INDEX(MATCH())' functions to identify the activity with the highest counts, and display it in a separate table. This activity would be identified as the most important activity to perform to start the process of growing the business's BI capabilities in the specific category. Furthermore, we visualised the proportion of counts per stated activity using pie charts, in order to compare the significance of each activity, and thus order which activities should be focused on first.

5.3.4 Component 4: Data Disciplines Rank of Importance

We used the 'ARRAYFORMULA()' function to list down the data disciplines and their given ranks from the BI state assessment worksheet, then visualised their rank of importance using a bar chart. This would allow the business to identify which data disciplines they most need to improve upon in their business.

5.3.5 Overall functionality

Overall, the BI dashboard offers Baraka Hygienics at-a-glance insights into their BI Maturity Score as per the CMMI levels, a gap analysis of their current and target state as well as the most important activities and data disciplines that can aid them in growing their BI maturity capabilities. Furthermore, as the dashboard is directly connected to the BI Maturity State Assessment worksheet, the business can continuously update this tool through self-assessments to mature through further stages of BI maturity.

5.4 Functionality of the BI Dashboard

The BI dashboard is designed to facilitate trend analysis, forecasting, profit-cost analysis, and product analysis for Baraka Hygienics. Through its interactive and visually appealing interface, the dashboard enables users to make data-driven decisions efficiently. The BI Dashboard comprises three main sections: Profit-Cost Analysis, Product Analysis, and Predictive Analysis. Each section offers specific functionalities tailored to the needs of Baraka Hygienics, providing insights into various aspects of the business.

5.4.1 Component 1: Profit-Cost Analysis

The Profit-Cost Analysis section focuses on tracking and visualising key financial metrics. One key functionality is the metrics display. At the top of this section, key financial metrics such as profit and cost are displayed using scorecard charts. These metrics are updated in real-time, offering immediate insights into the business's financial health.

Another key functionality is the visualisations of profit trends, of which there is a bar chart, a line graph and a pie chart. The bar chart displays the cost, sales, and profit over time. This chart helps in identifying trends and patterns in financial performance. The line chart provides a detailed view of the monthly variations in cost, sales, and profit. The pie chart shows the expenditure distribution across different categories such as internet, raw materials, rent, and transport, aiding in understanding the allocation of expenses within the business.

5.4.2 Component 2: Product Analysis

The Product Analysis section is dedicated to examining the performance of different products. Key functionalities include product selection, where users can choose specific products from a dropdown menu to examine their performance. Another functionality is the display of sales metrics, providing insights into sales trends and patterns for specific products. Another key functionality is the various charts and graphs are used to visualise product performance, including sales trends over time and comparisons between different products.

5.4.3 Component 3: Predictive Analysis

The Predictive Analysis section leverages advanced algorithms to forecast future trends. Key functionalities include forecast settings, in which users can specify the number of months for the forecast, select the variable to be forecasted, and choose the predictive algorithm.Another key functionality is the sales forecast chart, which displays the forecasted sales along with historical data, helping users to anticipate future performance. Another key functionality is the financial decomposition analysis, which provides a detailed breakdown of the sales data, including components such as the de-seasonalised trend. This analysis helps in understanding the underlying factors influencing sales trends. Another key functionality is the correlation matrix, which visualises the correlation between different financial variables such as cost, profit, and sales. This matrix helps in identifying relationships between variables, aiding in more informed decision-making.

5.4.3 Overall Functionality

The BI Dashboard developed using Streamlit offers comprehensive functionalities for analysing and visualising business data. Its interactive features, real-time updates, and visually appealing interface make it a powerful tool for Baraka Hygienics. By leveraging this dashboard, stakeholders can gain valuable insights, improve financial management, and make data-driven decisions to enhance business performance.

6.0 Implementation Plan

6.1 What is the implementation plan ?

Implementing BI in an SME involves integrating BI solutions, such as dashboards, to transform raw data into actionable insights, enhancing decision-making processes.

6.2 Steps for implementing the BI dashboard in the SME.

Implementing a BI dashboard at Baraka Hygienics involves integrating it into their system for future use. Here's a detailed plan:

6.2.1 Define the Objectives and Scope

- **Identify Goals :-** Baraka Hygienics should identify their objective or aim in wanting to implement the BI dashboard such as increasing their sales by 30%.
- **Scope of Implementation :-** Identify the place where the implementation should be taking place such as primarily targeting the sales department if they want to achieve a 30% increment in sales.
- **Form a team :-** Various roles including roles such as project manager, data analysis or BI developer such as data analyst who can analyse the sales data within the department.

6.2.2 Asses Current Data Infrastructure

- **Data Inventory :-** Baraka Hygienics should conduct an inventory of the existing data sources, format and system which included sales databases and external data sources.
- **Data Quality :-** Data generated or used should be of high quality and if any transformation or cleaning of the data should be done.

6.2.3 Select Appropriate BI tools

- **Tool Selection :-** BI tools chosen should be in accordance with the Baraka Hygienics needs and budget such as Power BI where they can be able to analyse their sales data using features such as stacked charts.
- **Customization :-** BI tools chosen should enable one to customise it to meet specific requirements of Baraka Hygienics such as visualise key sales metrics and use of visualise that highlight factors that may contribute to the 30% increment.

6.2.4 Develop the BI dashboard

- **Dashboard Design :-** Baraka Hygienics dashboard that align with the company's objective and user needs such as if 30% increment then the BI dashboard can focus on tracking sales performance across product categories.
- **Integration :-** Integrate various data sources into the BI dashboard.
- **Testing :-** Baraka Hygienics should conduct testing to ensure data accuracy and functionality.

6.2.5 Deploy the BI dashboard

- **Pilot Deployment :-** Baraka Hygienics should deploy the dashboard on a smaller group of user for feedback and adjustment such as they can deploy it to sales managers or representative and test it the dashboard for one month, get their feedback and asses if the dashboard contribute in achieving the 30 % sles increase goal and make adjustment based on their feedback.
- **Full Deployment :-** Baraka Hygienics should deploy the dashboard to all intended users after rectifying the problems such as they can deploy it to all sales managers or representatives and test it for a half year to get feedback if 30% increment is achieved.

6.3 Training and Support for SME Staff

In order for the BI dashboard to be properly implemented there is a need for training of the staff members.

6.3.1 Training Programs

- **Initial Training :-** Baraka Hygienics's staff should be taught on how to use the BI dashboard , interpret data generated from it and generate reliable reports.
- **Role- Based Training :-** Different staff have different capabilities therefore each staff should be given different roles that may be able to maximise their capabilities. Therefore, Baraka Hygienics can train them based on their assigned roles.

6.3.2 Documentation

- **User Manuals :-** Baraka Hygienics's staff should be provided with detailed user manuals and guides for references.
- **Online Resources :-** Baraka Hygienics's staff that may require more clarification on their training should be provided with online tutorials and videos.

6.3.3 Continuous Support

- **Help Desk :-** In place of any issue or question by the staff, Baraka Hygienics could establish a help desk or contact one of the support team members.
- **Regular Updates :-** Scheduling of regular updates and refresher training sessions should be added to keep the staff up-to-date with new features and best practices.

6.4 Recommendations for Ongoing Use and Maintenance.

6.4.1 Regular Data Updates

- **Data Refresh : -** Baraka Hygienics should ensure the data that is fed is continuously updated so as to maintain accuracy and relevance.
- **Automed Process :-** In order to facilitate the real time data, Baraka Hygienics could automate their data extraction and loading process.

6.4.2 Performance Monitoring

- **KPIs :-** Baraka Hygienics should establish key performance indicators to monitor the performance and usage of BI dashboard.
- **Feedback Mechanism :-** Baraka Hygienics can create a feedback mechanism in order for users to report their issues or provide suggestions which contribute to the objective of the company.

6.4.3 Continuous Improvement

- **Review and Revise :-** Regularly review the Baraka Hygienics's BI dashboard's overall performance and make necessary adjustments based on user feedback and changing business needs.
- **Training Updates :-** Baraka Hygienics should continuously update their training materials and programs for staff and the version of dashboard to reflect or upgrade in the BI system .

7.0 User Documentation/Manual

7.1 Definition of Terms

According to Document360 (n.d.), ‘A user manual is a document provided to a user that helps in using a particular system, product, or service seamlessly’. Our user manual is designed to aid Baraka Hygienics to understand how to effectively use both the BI Maturity Assessment Tool and the BI Dashboard to improve their business processes and decision-making capabilities.

7.2 Documentation for BI Maturity Assessment Tool

The BI Maturity Assessment Tool is a workbook hosted on Google Sheets.

7.2.1 System Requirements

These are the general system requirements to access the Google Sheets workbook.

Category	**Brand**	**Requirement**
Operating System	**Windows**	**Windows 7 and above**
	Mac	**OS X 10.10 and above**
Web Browsers	**Google Chrome**	**Latest version**
	Mozilla Firefox	**Latest version**
	Microsoft Edge	**Latest version**
	Safari	**Latest version**
Internet Connection	**Speed**	**At least 1 Mbps for a smooth experience**
	Reliability	**Stable internet connection to avoid disruptions**
Hardware	**Computer**	**A computer that can handle using Google sheets**
Additional Requirements	**Google Account**	**Required to access google sheets**

7.2.2 Access and Download

There will be an email sent with a link to access the BI Maturity Assessment Tool via Google Sheets. Click the link to access the dashboard on the cloud via google sheets. If you wish to download the dashboard, you can click the file tab on the top menu bar in Google Sheets, then click the download option in the drop-down menu and download the dashboard in your desired format. The instructions for download are thus File > Download.

7.2.3 User Interface Overview

The BI Maturity Assessment Tool is a workbook with three worksheets, namely the 'Description', 'BI Maturity State Assessment' and 'BI Maturity Dashboard' sheets. These are accessible through the sheets tab at the bottom of the google sheets workbook. The

1. Description Sheet: Provides an overview and details about the data and dashboard.
2. BI Assessment Sheet: Contains a comprehensive assessment of the organisation's BI practices through a series of statements.
3. Dashboard Sheet: Displays charts, graphs and tables that give an intuitive, at-a-glance understanding of the company's BI Assessment Level.

7.2.4 Functionalities

One Key functionality of the tool is allowing for self-assessment of the organisation's current and Target BI Maturity Levels using the BI Maturity State Assessment Worksheet. The following column entries are designed to be editable in order to conduct a BI Self Assessment:

1. Current State (Column D)
2. Target State (Jan 2025) (Column E)
3. Comments/Observations (Column F)
4. Activities to Get to Target State (Column G)
5. Include in Roadmap (Column H)

The average of the entries in the current and target state columns are automatically computed using google sheets functions.

Another Key functionality is the automatic generation of a BI Assessment score, Gap analysis charts and breakdown of key activities to implement for maturation of BI practices. These visualisations are appropriately edited in the BI Assessment Dashboard sheet simply by editing the entries of the five aforementioned columns.

7.2.5 Troubleshooting

Common Issues	Solutions
Sheets Not Loading Properly	Ensure you have a stable internet connection. Refresh the browser window (press F5 or the refresh icon). If the issue persists, try clearing your browser cache and cookies.
Unable to Access Sheets	Verify that you are logged into the correct Google account with the necessary permissions to view and edit the document. Check the sharing settings to ensure the document is shared with the appropriate users.
Export Errors	Make sure you have the necessary permissions to export the file. Try exporting the document in a different format (e.g., PDF instead of Excel). Ensure there is enough storage space on your device for the exported file.
Formulas Not Working	Double-check the formulas for any errors. Ensure all referenced cells are correct and contain valid data. If using complex functions, refer to Google Sheets documentation for correct syntax.
Visualisations not DIsplaying Correctly	Ensure that all necessary data is present and correctly formatted in the BI Maturity State Assessment sheet. Check that any referenced ranges are correct and include the necessary data.
Slow Performance	Reduce the number of active add-ons and extensions running in your browser.
Collaboration Issues	Make sure all collaborators have the necessary permissions to edit the document. Check if there are any conflicts or simultaneous edits causing issues. Use the "Version history" feature to restore previous versions if needed.
Data loss or Corruption	Use the "Version history" feature to restore a previous version of the sheet. Regularly back up your data to prevent loss.

Further help can be obtained by visiting the Google Sheets Help Center Website, which has detailed guides and troubleshooting tips from google.

7.3 Documentation for the Sales BI Dashboard

The BI dashboard is built using Streamlit and is hosted on the cloud.

7.3.1 System Requirements

The BI Dashboard requires specific system requirements in addition to the general requirements outlined in section 7.2.1.These requirements ensure that users have the necessary tools and environment to effectively utilize and interact with the BI Dashboard. For more detailed information on these requirements, please refer to the GitHub documentation.

7.3.2 Accessibility

Our BI Dashboard is designed with accessibility in mind to ensure it is usable by as many people as possible, including those with disabilities. Key accessibility features include:

Feature	Description
Keyboard Navigation	All interactive elements can be accessed and operated using a keyboard.
Responsive Design	The layout adjusts seamlessly across different devices, including desktops, tablets, and smartphones.
Colour Contrast	We adhere to WCAG guidelines to ensure text is readable for users with visual impairments

7.3.3 User Interface Overview

Our dashboard is meticulously crafted to empower you with valuable insights, enabling you to make informed decisions with confidence. Here's an overview of what you can find within its intuitive interface:

Interface page	Description
Profit/Loss and Cost Analysis	Detailed analysis of financial performance, including profit and loss and associated costs of operations.
Product Analysis	In-depth analysis of product offerings, including sales performance and customer preferences.

Predictive Analysis	Uses advanced time-series forecasting to predict future trends and demands for products, enabling proactive decision-making.

7.3.4 Troubleshooting

If you enter any issue while using the BI dashboard, please follow these troubleshooting steps:

Common Issues	Solutions
Dashboard Not Loading Properly	Ensure you have a stable internet connection. Refresh the browser window (press F5 or the refresh icon). If the issue persists, try clearing your browser cache and cookies.
Unable to Access Dashboard	Verify that you are logged into the correct account with the necessary permissions to view and edit the dashboard. Check the sharing settings to ensure the dashboard is shared with the appropriate users.
Export Errors	Make sure you have the necessary permissions to export the file. Try exporting the document in a different format (e.g., PDF instead of Excel). Ensure there is enough storage space on your device for the exported file.
Visualizations Not Displaying Correctly	Ensure that all necessary data is present and correctly formatted. Check that any referenced ranges are correct and include the necessary data.
Slow Performance	Reduce the number of active add-ons and extensions running in your browser.

Collaboration Issues	Make sure all collaborators have the necessary permissions to edit the document. Check if there are any conflicts or simultaneous edits causing issues. Use the "Version history" feature to restore previous versions if needed.
Data Loss or Corruption	Use the "Version history" feature to restore a previous version of the dashboard. Regularly back up your data to prevent loss.

Further help can be obtained by visiting the Streamlit Help Center, which has detailed guides and troubleshooting tips from Streamlit.

8.0 Feedback and Evaluation

Our team reached out to BarakaHygienics to obtain feedback on our BI assessment, the BI and Key Performance Indicator dashboards as well as our drafted project report. This feedback is crucial to our analysis of the success of the project, in terms of comprehensibility and utility of the tools we created for the organisation. The feedback we obtained highlighted three key positive impacts of our analysis:

8.1 Clarity and Comprehensibility of the Report

The dashboards and project report communicate complex information in a clear and easy to understand manner. This is advantageous as the project is accessible and actionable for key stakeholders, giving them the tools and insights to make the recommended changes in the BI practices without too steep of a learning and implementation curve.

8.2 Recognition BI Practice Scores and Recommendations

The report highlighted the current and target states of BI practices within the business, and assigned them appropriate CMMI scores. The founder acknowledged the deficiencies highlighted in the business's practices, and the importance of this assessment in maturing their BI score. Furthermore, our recommendations on forming a dedicated team for BI, as well as implementing the inclusion of customer feedback mechanisms and e-commerce features on the business's official website were seen as beneficial.

8.3 Positive Impact on Business Growth

The founder recognised the clear steps and adoption plan highlighted in our BI assessment, and appreciated the necessity of adopting and implementing the given BI tools to drive growth of her business. Furthermore, there was expressed excitement and anticipation for the next stages of the project, indicating stakeholder engagement and readiness for implementation of our insights.

8.4 Overall feedback

Overall, our analysis of the business's sales data and creation of BI tools for their use was seen as beneficial, due to the comprehensibility of the work as well as potential positive impact on the business's growth if implemented.

9.0 Future Recommendations

As Baraka Hygienics grows and expands its customer base, we have the following recommendations:

1. To boost efficiency, Baraka Hygienics can explore using BI tools for real-time inventory management. They can set up easy-to-read dashboards to track stock levels and automate alerts for reorders based on sales trends. Implementing strategies such as Economic Order Quantity (EOQ) and Just-in-Time (JIT) inventory management will help cut costs while ensuring products are always available. Outsourcing this to a service provider will simplify the process.

2. Set up a customer feedback system and platform to understand what customers think. By collecting and analysing reviews from their website and social media pages, Baraka Hygienics can gain insights into how to enhance both customer service and product quality, directly from their customers' perspectives.

3. Establish and leverage social media analytics to refine their target market effectively. By analysing their followers, they can pinpoint specific demographics within the general population. This insight will guide the creation of targeted ad campaigns tailored to resonate with these specific customer groups, enhancing engagement and conversion rates.

4. Implement an e-commerce platform on their website to automate the sales tracking process. This method is more efficient than manually inputting sales data into Excel, streamlining operations and providing real-time insights into product sales and customer transactions.

10.0 Conclusion

Throughout this project , we have been able to conduct a comprehensive analysis of Baraka Hygienics' business intelligence maturity, data exploration, and dashboard design. Through use of Capability Maturity Model Integration (CMMI) we were able to identify the key areas of interest in their BI practices, laying a firm foundation for better informed decision making and strategic growth.

Our analysis consisted of sales and expenses records which provided valuable insights into revenue generation and cost structures. Rent and Raw materials were identified as most expenditures which high revenue linked to substantial tenders and bulky sales. Without additional revenue from the tenders the profit is lower as seen in the months after October. Key recommendations include optimising the 'others' expense category, improving transport logistics, and exploring cost-effective packaging solutions.Inclusion of mixed product strategies alongside these measures, aiming to enhance profitability and operational efficiency.

In our BI report and dashboard, we managed to use Google sheets which offered several advantages, including real-time data visualisation, cost - effectiveness and user accessibility, crucial for stakeholders.Within the Google sheets we were able to do BI effectiveness, and user accessibility, crucial for stakeholders already familiar with the platform. The BI Maturity Assessment which contained mainly three components: assessing BI maturity scores, conducting gap analysis, and prioritising activities for enhancing BI capabilities. These components were integrated efficiently enabling continuous update based on input data changes thus allowing continuous improvement in BI maturity levels.

The implementation plan for the BI dashboard outline steps on how the company can integrate the dashboard into their operational framework enhancing efficiency in theri overall performance. Moving forward continuous monitoring and adaptation will be crucial to maximising the dashboard's effectiveness and ensuring sustained business improvement.

Overall the project has provided Baraka Hygienics with the tools and insights needed to advance their business intelligence capabilities, paving the way for more strategic decision-making and long-term growth.

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Appendices

Appendix A: DSA3050 Project Introduction Letter to Baraka Hygienics

SUMMER SEMESTER 2024
DSA 3030 A Business Intelligence Class
INSTRUCTOR: Dr. Mursi
DATE: 23rd May 2024
Due Date: Week 9

DSA 3050 Project Assignment

To Whom it May Concern

My name is Chesia Anyika and I am a student in the DSA 3030 A Business Intelligence class at USIU, under the instruction of Dr. Mursi. I am writing to introduce you to an exciting opportunity for Baraka Hygienics to benefit from our academic project, which focuses on assessing and enhancing business intelligence (BI) capabilities for Small and Medium Enterprises (SMEs) in Nairobi.

As part of our coursework, we have been tasked with identifying an SME to collaborate with in a real-world BI project. The objectives of this project are to assess the current BI maturity of your organization, provide a comprehensive report with actionable recommendations, and develop a custom BI dashboard tailored to your specific business needs.

Project Benefits:

1. **BI Maturity Assessment:** We will conduct a thorough assessment of your current BI practices, data management, and reporting capabilities using recognized BI maturity models.
2. **Comprehensive Report:** Based on our assessment, we will provide a detailed report highlighting strengths, areas for improvement, and strategic recommendations to advance your BI maturity.
3. **Custom BI Dashboard:** Our team will design and develop a BI dashboard that addresses your key performance indicators (KPIs) and provides actionable insights to enhance decision-making processes within your organization.
4. **Implementation Support:** We will assist in the implementation of the BI dashboard and provide training to ensure your team can effectively use the tool.

This collaboration is not only a valuable learning experience for us as students but also offers your organization a unique opportunity to leverage advanced BI solutions at no cost. Our goal is to deliver a practical and impactful BI tool that you can integrate into your operations to drive business growth and efficiency.

We would be honored to work with Baraka Hygienics on this project and contribute to your BI journey. Should you be interested, we would like to schedule a meeting at your earliest convenience to discuss this opportunity in more detail and answer any questions you may have.

Thank you for considering this collaborative opportunity. We look forward to the possibility of working with you and contributing to the success of Baraka Hygienics.

Warm regards,

Chesia Anyika
DSA 3030 A Business Intelligence Student
USIU
Chesia.anyika@gmail.com
0728741380

Instructor's Contact Information:

Dr. Mursi
Instructor, DSA 3030 A Business Intelligence
USIU
jmursi@usiu.ac.ke

0710469003

Appendix B: B.I Project Questionnaire and Response

Baraka Hygeinics - B.I Project Questionnaire
https://docs.google.com/forms/u/0/d/1WuIn9qFMmmqw0DG9F_Ic...

Baraka Hygeinics - B.I Project Questionnaire

Introduction to Questionnaire

This questionnaire is designed for students enrolled in **DSA3050A (Business Intelligence and Data Visualization)** who are conducting a project to assess the **Business Intelligence (BI) Maturity of Baraka Hygienics**.

The questionnaire has **two sections**. The first aims to gather information about Baraka Hygienics for our understanding of the business, while the second is a BI maturity assessment to understand how Baraka Hygienics utilizes data and opportunities for improvement.

Thank you for participating in this survey. Your insights are valuable in advancing our understanding of BI practices in real-world business environments.

Section 1: Business Understanding

The business understanding section seeks to capture key details about the organization, including employee roles, industry context, offered products or services, client demographics, and operational practices.

Briefly state and describe your role in Baraka Hygienics. *

Founder /owner

How many total employees does your business have? *

- ○ 1 employee (Solo Business)
- ◉ 2-10 employees (Very small Business)
- ○ 11-50 employees (Small to Medium Enterprise)
- ○ 51-100 employees (Medium sized business)
- ○ Other: _____

What types of employees do you have? (select all that apply) *

- ☐ Full-time
- ☐ Part-time
- ☑ Freelance
- ☐ Contract workers
- ☐ Other: _____

Which Industry sector Baraka Hygienics operate in? *

Manufacturing

Who are your primary target customers in terms of age *

- ○ Young Adults (18-25)
- ○ Adults(26-40)
- ○ Seniors (41+)
- ◉ All age groups
- ○ Other: _____

Who are your primary target customers in terms of gender? *

- ○ Female
- ○ Male
- ◉ Both
- ○ Other: _____

How else would you describe your target customers?

All ages and all genres because soap , body oil and detergents are needed by all

What marketing strategies do you use? (Select all that apply) *

- [x] Social media
- [ ] Email Campaigns
- [ ] Physical Ads
- [x] Online Ads (Websites, Whatsapp)
- [x] Word of Mouth
- [ ] Other: _____

What are the main products you offer? (Select all that apply) *

- [x] Home Cleaning Products (Detergents, Cleaning agents, dishwashing products)
- [x] Personal Hygiene Product (Soaps, bodywash, oral care products etc.)
- [x] Skin Care products (Moisturisers, Sunscreens, Cleansers, Ex)
- [x] Hair Care Products (Shampoo, Conditioners, Hair oil etc.)
- [ ] Other: _____

If 'Home Cleaning Products' was selected, which products do you offer? (select all that apply)

- [x] Surface Cleaners (Glass, wood, stainless steel, countertop, upholstery cleaners,)
- [x] Bathroom Cleaners (Toilet, tub, shower, sink, mould and mildew cleaners)
- [x] Kitchen Cleaners (Degreasers, Oven and Cooker cleaners, dish-washing products)
- [x] Laundry Products (Laundry detergents, fabric softeners, stain removers and bleach)
- [ ] Air fresheners and deoderizers (air freshener sprays, plug in air fresheners, scented candles, diffusers)

Miscelleaneous cleaning tools (Sponges, Scrub brushes, Cleaning coths, Mops, buckets etc)

If 'Personal Hygiene Products' was selected, which products do you offer? (select all that apply)

- [x] Bar soap
- [x] Body wash
- [ ] Toothpaste
- [ ] Toothbrushes
- [ ] Mouthwash
- [ ] Deodorant
- [ ] Perfumes
- [ ] Other: _____

If 'Skin Care Products' was selected, which products do you offer? (select all that apply)

- [x] Moisturisers and Lotions
- [x] Facial and Body oils
- [x] Facial cleansers and toners
- [ ] Serums (Vitamin C, Hyaluronic acid)
- [ ] Sunscreen
- [x] Acne treatments
- [x] Eczema treatments
- [ ] Other: _____

If 'Hair Care Products' was selected, which products do you offer? (select all that apply)

- [x] Shampoo
- [ ] Conditioners
- [x] Leave-in conditioner
- [x] Hair oils
- [ ] Styling products
- [ ] Hair dyes
- [ ] Other: _____

What makes your products unique? (Select all that apply) *

- [x] Low prices
- [x] High Quality
- [x] Eco-friendly
- [x] Wide Variety
- [x] Hypo-allergenic (catered to sensitive skin)
- [ ] Other: _____

Are your products manufactured by your business? *

- (●) Yes
- ( ) No
- ( ) Other _____

If not, where do you source your products from? (select all that apply)

- [ ] Locally
- [ ] Internationally
- [ ] Multiple suppliers
- [ ] One supplier
- [ ] Other: _____

Are you planning on introducing new products soon? (list them if Yes)

vitamin c serum, sunscreen, aloe vera gel.

What are your main sales channels? (select all that apply) *

- [x] Online store (s)
- [ ] Physical store (s)
- [x] Wholesale (selling to other retailers in bulk)
- [ ] Other: _____

How is your company structured in terms of departments or teams? *

_____

manufacturing department headed by myself, distribution team including a Boda delivery and sales persons

Section 2: Business Intelligence Assessment

The Business Inteligence Assessment section of this questionnaire utilizes the CIMM (Capability Maturity Model) to evaluate the Business Intelligence maturity level of the company. These questions are designed to assess how effectively the organization utilizes data for decision-making and operational efficiency, aiming to identify strengths and areas for improvement in its BI practices.

By answering these questions, you can get a better understanding of how your business uses data and find ways to improve.

How do you mainly track your data? *

- ○ Physical Records - ledgers, notebooks, log-books
- ◉ Digital Spreadsheets - Microsoft excel, Google sheets
- ○ Specialised Software - Point of sales systems, inventory management software
- ○ We do not track our data
- ○ Other: _____

Which data do you collect and track about your business? (select all that apply) *

- ☑ Sales data - sales transactions, revenue
- ☑ Financial data - profit/loss statements, cash flow, expenses
- ☐ Inventory data - stock levels, product availability, inventory turnover
- ☑ Customer data - personal information, demographics, purchase history
- ☐ Marketing data - campaign performance, advertising expenditure
- ☐ Supply Chain data - supplier information, procurement costs, logistics tracking
- ☐ Website and Digital Analytics - website traffic, user behaviour, digital marketing
- ☐ analytics Employee Data - HR records, payroll information
- ☐ Quality control data - product quality metrics, defect rates, compliance with quality standards
- ☐ Other _____

How do you determine which data you need to track for decision making purposes? *

- (●) We decide based on ongoing needs and changing priorities
- ( ) We have a general plan that we adjust as necessary
- ( ) We have a well defined plan outlining our information needs

How do you use your data? (select all that apply) *

- [x] Basic data tracking: We track basic information like sales to understand our business operations.
- [ ] Standard reports and Dashboards: We use standard reports and dashboards to see how our business is performing.
- [x] Decision Making: We use information to helo us make decisions about how to run our business.
- [x] Predicting trends: We use data to try and predict what might happen in the future for our business
- [x] Improving the business: We use data to identify aspects of our business to improve upon.
- [ ] Keeping up with changes: We use data to quickly adapt to changes in our business environment.
- [ ] Working together effectively: We share information across our business to help everyone work together better.
- [ ] Other: _____

Do you have company guidelines on data collection and use? *

- ( ) We have strict guidelines on data collection and use.
- ( ) We have flexible, undefined guidelines on data collection and use.
- (●) We do not have guidelines on data collection and use

Do you have a standard way to organise your data (like in reports, spreadsheets, summaries) *

- (●) No, each one looks different.
- ( ) Yes, but we allow flexibility.
- ( ) Yes, all follow the same standard.

How do you protect your data? *

- (●) Basic security, done manually - password protected files for sensitive information, Access to files limited to authorised personnel only.
- ( ) Formal practices and regular security checks - We have established data security policies and procedures documented in our company's security manual. We conduct regular security training for employees to ensure they understand best practices. Additionally, we perform periodic security assessments and audits to identify and address vulnerabilities.
- ( ) Automated security measures, regular tests - We use advanced cybersecurity tools and software such as firewalls, intrusion detection systems (IDS), and encryption to protect our data. These measures are automated to monitor and respond to potential threats in real-time. We also conduct regular penetration testing and vulnerability assessments to proactively identify and mitigate security risks.
- ( ) We do ~~not secure our data~~

Other: _____

Do you have a set way of using data for decision making? (e.g making summaries, reports,analyzing trends) *

- (●) No, we consider the data as it comes.
- ( ) Yes, but it is not always followed.
- ( ) Yes, these methods are used by all employees

Do you measure how well your business is performing using data? *

- (●) No, we don't measure this
- ( ) Yes, but not regularly
- ( ) Yes, we have clear performance measures and review them regularly

Do you measure the benefits your business gets from using data? *

- (●) No, we do not measure this.
- ( ) Yes, but not regularly
- ( ) Yes, we have clear measures and review them regularly

Do you have someone who promotes using data in your business? *

- (●) No, we don't have such a person
- ( ) Yes, but their role is not very clear
- ( ) Yes, and they actively promote and support data use

Do you have a plan for how data can benefit your business? *

- (●) No, we don't have a plan
- ( ) Yes, but it is not very clear
- ( ) Yes, and everyone understands it

Do key managers in your business communicate about how you use data? *

- (●) No, we do not regularly discuss this
- ( ) Yes, but not regularly
- ( ) Yes, we have regular, clear communication.
- ( ) Other: _____

Signatures of Team Members