Key Business Intelligence Documents

These documents help capture project requirements, align with stakeholders, and ensure a structured approach to BI initiatives. They serve as foundational tools to guide your end-of-course project and future BI endeavours.

Key Documents

1. Stakeholder Requirements Document

This document captures stakeholder requests and requirements to understand their needs before diving into project planning. It should address the following:

- **Business Problem**: What is the primary question or problem to solve?
- **Stakeholders**: Who are the major stakeholders, and what are their job titles?
- **Stakeholder Usage**: How will stakeholders use the BI tool?
- **Primary Requirements**: What requirements must the BI tool meet for success?

Considerations:

- Identify essential questions to answer before starting.
- Outline necessary datasets.
- Define access levels for the dashboard.

2. Project Requirements Document

Once stakeholder requirements are established, this document outlines the project requirements needed to meet those needs:

- **Purpose**: Why is this project happening? Why should the company invest resources?
- **Key Dependencies**: Detail the project elements, including teams, contacts, and deliverables.
- **Stakeholder Requirements**: List and prioritize stakeholder requirements (R - required, D - desired, N - nice to have).
- **Success Criteria**: Use SMART criteria to define success.
- **User Journeys**: Document current vs. ideal user experiences.
- **Assumptions**: Clearly state any assumptions made.
- **Compliance and Privacy**: Address legal and privacy considerations.
- **Accessibility**: Ensure reports are accessible to all users.
- **Roll-out Plan**: Outline the scope, priorities, and timeline.

References: Include any relevant documents, laws, or similar projects for context.

3. Strategy Document

This final document aligns stakeholders on project deliverables and dashboard functionality:

- Collaborate to establish required metrics, calculation methods, and data limitations.
- Provide stakeholders with a dashboard mock-up for feedback and sign-off.

Importance of Documentation

Staying organized and aligned with stakeholders is vital in the BI process. Early documentation helps outline requirements and strategies, facilitating better communication and planning throughout the project lifecycle.

Optimal Pipeline Processes

A data pipeline is a series of processes transporting data from sources to storage and analysis.

Modular Design

- **Benefits**:
    - Allows for the development of modular components that can be optimized individually.
    - Facilitates error isolation and troubleshooting.
    - Encourages version control to track changes over time.
- **Development Environment**: Create a separate environment for testing changes before implementing them.

Data Accuracy and Integrity

Ensuring the accuracy and integrity of data is critical:

- **Key Considerations**:
    - **Completeness**: Is all necessary data present?
    - **Consistency**: Are values consistent across datasets?
    - **Conformity**: Does values match require formats?
    - **Accuracy**: Do values represent actual data accurately?
    - **Redundancy**: Is there unnecessary duplication within datasets?
    - **Integrity**: Are important relationships maintained?
    - **Timeliness**: Is data current?

Implementation: Create checkpoints in the pipeline to address these issues proactively.

Creating a Testing Environment

- Establish a staging environment for iterative testing of changes without disrupting live data access.
- Use stable datasets to compare changes against current processes.

Dynamic Dashboards

Purpose of Dashboards

Dashboards serve as powerful tools for visualizing data and providing stakeholders with actionable insights. They should:

- Track, analyze, and visualize data.
- Enable stakeholders to answer questions and solve problems effectively.

BI Professional vs. Stakeholder Perspectives

Element	BI Professional Tenets	Stakeholder Tenets
Centralization	Create a single data source for all stakeholders.	Work with a comprehensive view of data.
Visualization	Show data in near real-time.	Spot trends and patterns quickly.
Insightfulness	Include relevant information.	Understand the holistic story behind the numbers.
Customization	Create custom views for specific teams/projects.	Drill down to areas of specialized interest.

Important Notes

- Ensure that dashboard designs are updated when data structures change to maintain automatic data updates.

Effective Visualizations

Organizing Thoughts

Frameworks can help structure your visualization process:

- **McCandless Method**
- **Kaiser Fung's Junk Charts Trifecta Checkup**

Pre-attentive Attributes

Utilize marks and channels—visual elements that the brain recognizes automatically—to enhance understanding.

Design Principles

- Focus on clear communication of data.
- Regularly evaluate visualizations for effectiveness and make adjustments as needed.

Avoiding Misleading Visualizations

Ensure that visualizations accurately represent data to support informed decision-making.

Accessibility Considerations

- **Labelling**: Use clear labels for clarity.
- **Text Alternatives**: Provide text-based formats for non-visual users.
- **Simplification**: Keep designs straightforward to enhance understanding

Know Your Stakeholders and Their Goals

As a Business Intelligence (BI) professional, understanding the various stakeholders involved in your projects is crucial for success. Each type of stakeholder has unique goals and needs that must be addressed to ensure the project aligns with the overall business objectives.

Types of Stakeholders

1. Project Sponsor

The person who provides support and resources for a project, accountable for its success.

- **Example**: The team lead for the customer-facing team in an e-book retail company.
- **Goals**:
    - Optimize the e-reading app based on customer data.
    - Ensure a system is in place to deliver relevant customer insights to analysts.

2. Developer

Individuals who use programming languages to create, execute, test, and troubleshoot software applications.

- **Example**: Application and systems software developers working on the e-reading app.
- **Goals**:
    - Create and manage software tools for data capture.
    - Understand the requirements for new tools and integrations to support BI workflows.

3. Systems Analyst

Professionals who identify ways to design, implement, and improve information systems.

- **Example**: Analysts ensuring data captured by developers is accessible for internal use.
- **Goals**:
    - Enhance the use of hardware, software, and cloud services to achieve business objectives.

    - Ensure that the captured data is formatted and stored appropriately for analysis.

4. Business Stakeholders

Groups that include executives and teams interested in the broader strategic direction of the business.

- **Examples**: Executives, project managers, senior professionals, and potentially the chief technology officer.
- **Goals**:
    - Improve business processes and increase revenue.
    - Gain high-level insights for strategic decision-making.

Best Practices for Communicating with Stakeholders

Effective communication with stakeholders is crucial for success in business intelligence (BI). It involves not just building BI tools but also ensuring that these tools are accessible and understandable to users, empowering them to make informed decisions. This guide outlines key strategies for stakeholder communication and emphasizes the importance of fairness and objectivity in BI.

Key Communication Strategies

1. Ask the Right Questions

- **Identify Your Audience**: Understand who you are communicating with (e.g., sales team vs. data science team) and tailor your message accordingly.
- **Assess Their Knowledge**: Determine what stakeholders already know to avoid over-explaining or omitting critical information.
- **Clarify Their Needs**: Recognize what different stakeholders require—some may need detailed technical information, while others may only need high-level insights.
- **Choose the Best Communication Method**: Decide on the most effective way to share information, whether through emails, meetings, or presentations.

2. Define Project Deliverables

- **Set Clear Expectations**: Outline what stakeholders can expect from the BI tools and the project timeline.
- **Create Realistic Deadlines**: Identify dependencies and potential roadblocks to establish feasible timelines.

3. Effectively Share Business Intelligence

- **Simplify Complex Concepts**: Present technical information in a straightforward manner that is easily digestible for non-technical stakeholders.

- **Communicate Often**: Provide regular updates on project progress, milestones, and any changes. Consider using a changelog for transparency.

Prioritizing Fairness and Avoiding Bias

Importance of Fairness

- **Objective Analysis**: Strive to remain impartial and recognize multiple perspectives before drawing conclusions.
- **Contextualize Data**: Provide context about the data, including who collected it, what it represents, when it was collected, and how it was transformed.

Key Questions for Contextualization

- **WHO** collected the data?
- **WHAT** does the data represent and how does it relate to other datasets?
- **WHEN** was the data collected?
- **WHERE** did the data originate?
- **HOW** was it collected and processed?
- **WHY** is this data relevant to the business task?

Presenting Data Responsibly

- **Avoid Generalizations**: Be cautious about making broad claims based on limited data samples. For example, survey data collected from specific demographics should not be generalized to the entire population.
- **Promote Accessible Visualizations**: Ensure that data presentations are designed to be accessible to all users, including those with disabilities (e.g., using colorblind-friendly palettes).

How to Identify Key Metrics for a Project

Selecting the right metrics is crucial for the success of any project in business intelligence (BI). Here are five key points to consider when determining which metrics to include in your dashboards:

1. Limit the Number of Metrics

- **Focus on Relevance**: Choose only the most essential metrics that directly contribute to project success. Too many metrics can overwhelm users and dilute the effectiveness of your dashboard.
- **Actionability**: Ensure each metric provides clear insights. For example, if a specific metric drops, stakeholders should understand whether it's positive or negative and what actions to take in response.

2. Align with Business Objectives

- **Support Goals**: Metrics should reflect the broader business objectives. For instance, if the goal is to increase sales, relevant metrics might include revenue or conversion rates, while unrelated metrics (like customer satisfaction) should be excluded.

3. Assess Necessary Technologies and Processes

- **Data Availability**: Confirm that the required technologies and processes are in place to collect and analyze the data. Metrics are only useful if you can reliably obtain the necessary data to support them.

4. Consider the Cadence of Data

- **Data Frequency**: Understand how often data for each metric is available. If metrics have different reporting frequencies, it can complicate reviews and analysis.

5. Utilize SMART Methodology

- **SMART Criteria**: Ensure metrics are Specific, Measurable, Action-oriented, Relevant, and Time-bound. This helps avoid vague metrics and ensures they provide clear insights for stakeholders.

An Integrated View

In BI, an integrated perspective of the business is essential for effective decision-making. While some metrics, like revenue, are straightforward, others may require deeper analysis.

Choosing effective metrics is a vital skill for BI professionals. Focus on the number of metrics, alignment with business objectives, necessary technologies, data cadence, and adherence to SMART methodology. Maintaining an integrated view of the business will help ensure that the metrics you select not only inform decision-making but also drive project success.

North Star Metrics

North star metrics are critical indicators that help businesses measure long-term success. Unlike short-term performance metrics, these metrics capture the core value of a company's products or services, acting as a guiding light for decision-making and strategic direction.

Benefits of North Star Metrics

1. **Cross-Team Alignment**:
    - Different teams often focus on various projects and metrics. A north star metric provides a common goal that unifies efforts across departments, ensuring everyone is working towards the same overarching objective.
2. **Tracking Growth**:
    - It can be challenging to gauge overall growth without a clear long-term metric. A north star metric serves as a consistent data point for stakeholders to assess organizational performance over time.

3. **Focusing Values**:
    - This metric reflects what is most important to the organization. By selecting the right north star metric, businesses can prioritize their core values, such as customer satisfaction, retention, or sales cycles.

Choosing a North Star Metric

Selecting the right north star metric is foundational to a business intelligence strategy. It should encapsulate the most essential aspect of the business's mission. Here are key questions to guide the selection process:

- What is essential to this business's processes?
- What are the most important KPIs being measured?
- Which KPI captures all necessary information about the business?
- How can other metrics be structured around this primary metric?

As a BI professional, your role involves empowering stakeholders to make informed decisions that foster long-term growth. North star metrics are instrumental in this process, as they provide a comprehensive measure of business success, align teams towards a shared goal, and reinforce core organizational values. By focusing on the right north star metric, you can help steer your business toward sustainable growth and effectiveness.

Bridging the Gap from Current State to Ideal State

Business intelligence (BI) professionals utilize **gap analysis** to evaluate the current state of processes and systems against an ideal state. This method identifies opportunities for improvement, helping organizations enhance efficiency and optimize workflows. For instance, if a sales team's dashboard has a six-hour data lag, the goal might be to reduce this delay to one hour or less for timely insights.

Setting Direction with Stakeholders

The first step in bridging the gap is collaborating with stakeholders to establish the desired direction for the BI project. Key actions include:

- **Assessing Stakeholder Needs**: Understanding what stakeholders require from their BI tools is essential. This involves asking what data is crucial for their decision-making and identifying unmet needs.
- **Identifying Interaction Patterns**: Exploring how users interact with data helps clarify their expectations and how improvements can be made.

For example, if a growing sales team across multiple offices struggles with timely updates, their goal might be to minimize delays for better coordination.

Context and Data Quality

Understanding the context in which data exists is vital for meaningful analysis. Context includes:

- **Source of Data**: Who collected it, and why?
- **Collection Method**: How was it gathered?
- **Relevance and Impact**: What does the data represent, and how will it be used?

Maintaining high data quality is equally important. Inaccurate data can lead to flawed insights and poor decision-making, regardless of context. Therefore, confirming data sources and ensuring their cleanliness (no duplicates or null values) is critical.

Example Implementation

The BI professional for the sales team identifies key data sources that update every 15 minutes, while confirming that the data warehouse team maintains data integrity. This allows them to create a more efficient workflow, drastically reducing data processing time from six hours to less than one hour.

Building Structures and Systems

Designing effective structures and systems is a core responsibility of BI professionals. This involves:

- **Creating Database Systems**: Organizing data in a way that is easily accessible for users.
- **Implementing Data Pipelines**: Automating the movement and transformation of data to ensure timely availability.

By developing a new workflow, the BI analyst ensures that data sources are processed simultaneously, improving overall efficiency and enabling stakeholders to access critical information as needed.

Sharing Findings

Once improvements are made, BI professionals need to communicate these findings effectively. This includes:

- **Automating Reports**: Creating dashboards that allow stakeholders to monitor data independently.
- **Informing Stakeholders**: Clearly communicating backend improvements and encouraging regular data checks before meetings.

For example, the sales team now has a dashboard providing near-real-time updates, enhancing their ability to track progress effectively.

Acting on Insights

BI doesn't end with implementing changes; it requires ongoing monitoring and adjustments. Key steps include:

- **Measuring Outcomes**: Assessing the impact of changes to ensure they meet stakeholder needs.

- **Implementing Alerts**: Setting up notifications for data processing delays so teams can address issues proactively.

This approach allows teams to stay informed and ready to adapt as circumstances change.