



Leveraging Power Bi for Competitive Advantage

A Case Study of FedEx

**Bachelor of Arts, Business Management (BABMGSH-LI)
Proposal for Dissertation**

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Date: 30.08.2023



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Abstract

This dissertation will explore the role of Power BI as a leverage tool in decision-making processes, focusing on its impact on data silos, influence on decision-making, and the implementation experience at FedEx.

By conducting a comprehensive literature review and collecting mixed-methods data, this research will provide valuable insights into the practical implications of implementing Power BI in an organizational setting.

Through rigorous analysis, this study will contribute to the understanding of how Power BI can break down data silos, improve decision-making processes, and enhance the overall implementation experience.

By examining the specific case of FedEx, this research not only offers practical recommendations for organizations but also contributes to the broader field of business intelligence and data analytics.

Ultimately, this dissertation aims to empower organizations in making informed decisions about adopting and effectively utilizing Artificial Intelligence (AI) business intelligence tools like Power BI, thereby leading to more efficient and effective decision-making practices across industries.

Keywords:

Power BI, Business Intelligence, Decision Making Process, Data Silos, Data Architecture, Data Warehouse, Data Volume, Data Velocity, Data Variety, Data Governance, Implementation process, Supply Chain Management, Business Processes, Complexity, Accuracy, Visualisation, Intelligence, FedEx Study

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1. Background of the Study:

The digital universe has been undergoing exponential growth, leading to a vast amount of data being generated. According to Statista (2023), the size of the digital universe was approximately 64.2 zettabytes in 2020 and is expected to grow more than 180 zettabytes by 2025. This tremendous expansion in data has resulted in a significant impact on the global market for software, hardware, and services related to storing and analyzing big data, with an estimated tripling in size over the next five years. (Taylor, 2023). The future of enterprise analytics is heavily influenced by various technological advancements.

As mentioned in the report "The Global State of Enterprise Analytics, 2020," cloud computing, the Internet of Things (IoT), and artificial intelligence/machine learning are poised to have the greatest impact on analytics initiatives within enterprises in the coming years. Furthermore, Big Data, 5G, and security/privacy concerns are predicted to be the most influential factors across all global enterprise executives (MicroStrategy, 2019). The adoption of advanced and predictive analytics is currently dominating enterprise analytics initiatives, leading to improved efficiency and productivity (Colombus, 2019). These developments highlight the need for organizations to adapt to the data explosion and leverage emerging technologies to stay competitive in the rapidly evolving digital landscape.

In today's highly competitive business landscape, companies are increasingly relying on data analytics tools to gain a competitive edge. Power BI, a business intelligence tool developed by Microsoft, has emerged as a popular solution for organizations seeking to harness the power of data for informed decision-making (Microsoft, 2023).

According to (Williams & Williams, 2006), organizations often possess a vast amount of data, but the quality and suitability of this data can be poor, even with significant investments in information technology (IT). However, the implementation of business intelligence (BI) systems, such as Microsoft Power BI, can provide accurate and timely information that enhances decision-making processes. (Yeoh & Popovic, 2016)

Over the past decade, organizations across various industries, including manufacturing, healthcare, and finance, have recognized the value of BI systems in supporting decision-makers and improving organizational performance (Kappelman, et al., 2016). These systems, including Microsoft Power BI, enable organizations to effectively analyze and visualize their data, providing valuable insights for decision-making.

This study focuses on the application of Power BI in the context of FedEx, a global leader in logistics and transportation services. FedEx Corporation operates in a dynamic and complex industry, where timely access to accurate data is crucial for optimizing operations, enhancing customer experience, and gaining a competitive advantage. With a vast network of global operations of over 28,000 stations and operating facilities, FedEx handles around 20 million shipments daily, generating a massive amount of data. (FedEx, 2023) To effectively extract meaningful insights from this data that is all gathered in the FedEx Dataworks Network, FedEx has adopted Power BI as a strategic tool for data visualization, reporting, and analysis. (FedEx, 2023)

This study will explore how FedEx leverages Power BI to drive competitive advantage. By utilizing Power BI's capabilities, FedEx can transform raw data into actionable insights, enabling real-time monitoring of key performance indicators (KPIs), identifying operational bottlenecks, and facilitating data-driven decision-making at various levels of the organization.

The study will delve into the specific use cases and implementation strategies employed by FedEx to maximize the potential of Power BI. It will investigate how FedEx leverages Power BI to:

1.1 Address Data Silos

One of the primary challenges organizations face is the presence of data silos, which hinder effective data integration and collaboration (Wilder-James, 2016). Power BI offers a solution to this challenge by providing a centralized platform for data integration and visualization. While there is a huge research done on the Business Intelligence and data silos the studies that have emphasized the role of Power BI in addressing the siloes and improving data integration within organizations are scarce. In the book "Beginning Microsoft Power BI: A Practical Guide to Self Service Data Analytics" Clark explains how Power BI facilitates the integration of data from multiple sources, including ERP systems, Excel spreadsheets, and CRM databases. The author noted that Power BI enabled real-time data access and visualization, breaking down data silos and enhancing data-driven decision-making (Clark, 2020). Similarly, Nikita and Dhruvasish (2022) examined the impact of Power BI on data analysis in healthcare organizations. The study revealed that Power BI allowed healthcare professionals to integrate patient data from different sources, such as electronic health records and laboratory systems, into a single dashboard. This integration improved the efficiency of data analysis leading to enhanced patient care and outcomes. (Nikita & Dhruvasish, 2022)

1.2 Decision-Making Processes

Power BI not only addresses data silos but might also have a significant impact on decision-making processes within organizations. Several studies have investigated the influence of Power BI on data quality, speed, and accuracy. For example, (Nogueira, 2022) conducted a study in a financial institution and found that the interactive visualizations offered by Power BI allowed users to gain deeper insights into the data, leading to more informed decisions.

Moreover, Awan et al., (2021) examined the impact of BI on decision speed in organizations. The study found that BI reduced the time required to generate reports and analyze data, enabling faster decision-making processes. The authors concluded that BI enhanced decision speed by automating data processing that data driven insights improve the decision-making quality (Awan, et al., 2021).

1.3 Implementation Experiences

While there is a growing body of literature on the benefits and applications of Power BI, there is limited research on the implementation experiences and challenges faced by organizations. However, a few studies have addressed this aspect. For instance, Yahaya et al. (2019) conducted a case study in Public Sector and identified several challenges during the implementation of Power BI, including data quality issues, user resistance, and technical complexities. The study highlighted the importance of addressing these challenges through effective change management strategies and user training programs to ensure the successful adoption and implementation of BI (Yahaya, et al., 2019). Similarly, Batko & Slezak (2022) examined the implementation experience of Power BI in a healthcare organization. The study identified the lack of data governance and standardized processes as major challenges. The authors emphasized the need for organizations to establish data governance frameworks and define clear data management policies to overcome these challenges and maximize the benefits of (Batko & Slezak, 2022) BI.

The findings of this study will contribute to the existing body of knowledge on the strategic use of Power BI in the logistics and transportation sector. By examining the success factors and

challenges faced by FedEx, other organizations in the industry can gain valuable insights into how they can leverage Power BI to gain a competitive advantage. This study also has broader implications for businesses across various sectors, as it highlights the potential of data analytics tools in driving operational excellence and improved decision-making.

Overall, understanding how FedEx leverages Power BI for competitive advantage will provide valuable insights into the transformative potential of data analytics tools in the logistics industry and beyond.

2. Research Rationale

The rationale for conducting this study lies in the need to understand the potential benefits and impact of Power BI implementation on FedEx, a global logistics and transportation company. By examining the specific research questions, the study will provide insights into the strategic use of Power BI for gaining a competitive advantage in the industry.

The motivation for this study also stems from the limited existing research specifically focused on the impact of Power BI implementation in the logistics and transportation sector. While Power BI is gaining traction across various industries, its application, and benefits in the logistics industry, particularly in a company like FedEx, are relatively unexplored. Therefore, this study will contribute to filling this research gap and provide practical implications for logistics and transportation companies looking to leverage Power BI for competitive advantage.

Overall, understanding the impact of Power BI on FedEx's operations, decision-making processes, and data management practices will not only benefit the specific organization but also contribute to the broader knowledge base on the strategic utilization of advanced analytics tools for gaining a competitive advantage in the industry.

The primary objectives of this research are as follows:

- i.** To assess the impact of Power BI implementation on FedEx's operational efficiency and effectiveness, including the encountered challenges, lessons learned, and best practices.
- ii.** To investigate the utilization of Power BI in addressing data silos and enhancing data integration within organizations.
- iii.** To analyze the influence of Power BI on decision-making processes and strategic planning, encompassing its effects on decision quality, speed, and accuracy.

This research will examine and evaluate the impact of Power BI implementation on FedEx's operational efficiency, decision-making processes, and data-driven capabilities in order to provide insights and recommendations for logistics companies considering the adoption of Power BI as a tool for enhancing their competitive advantage in the industry.

3. Research Questions

To accomplish the aforementioned objectives, this research will address the following questions:

- Q1.** How does Power BI Implementation impact FedEx?
- Q2.** How can Power Bi affect the Decision-Making Process?
- Q3.** How can Power BI improve Data Management and eliminate Data Siloses?

By investigating these research questions, we will gain valuable insights into the role and impact of Power BI as a strategic tool in decision-making processes within organizations. The findings of this study will contribute to the existing body of knowledge and offer practical guidance for organizations seeking to augment their decision-making capabilities through the adoption of Power BI.

4. Theoretical and Conceptual Frameworks

This study will explore the impact of Power BI implementation on FedEx, focusing on its influence on decision-making processes and data management. To achieve this, the theoretical frameworks used will be the Technology Acceptance Model (TAM) and the Resource-Based View (RBV) theory.

4.1 Technology Acceptance Model (TAM):

The Technology Acceptance Model (TAM) is a widely recognized theoretical framework developed by Davis (1989) to explain individuals' acceptance and usage of technology. TAM posits that the perceived usefulness and ease of use of a technology significantly influence its acceptance and subsequent impact on users and organizations (Venkatesh & Davis, 2000)

In the context of this study, TAM will be employed to assess the impact of Power BI implementation on FedEx. Specifically, the following research question will be addressed:

- How does Power BI implementation impact FedEx?

By examining employees' perceptions of Power BI's usefulness and ease of use, we will determine the level of acceptance and subsequent impact of Power BI on FedEx's decision-making processes.

4.2 Resource-Based View (RBV) Theory:

The Resource-Based View (RBV) theory emphasizes the internal resources and capabilities of an organization as critical determinants of its competitive advantage (Barney, 1991). RBV suggests that resources that are valuable, rare, inimitable, and non-substitutable (VRIN) can lead to sustained competitive advantage.

In this context, Power BI can be regarded as a valuable resource that enhances data management and eliminates data silos at FedEx. The following research questions will be addressed:

- How can Power BI affect the decision-making process at FedEx?
- How can Power BI improve data management and eliminate data silos at FedEx?

RBV theory will guide the examination of how Power BI, as a valuable resource, enables better access, integration, and analysis of data, thereby improving decision-making processes and contributing to FedEx's competitive advantage.

By integrating TAM and RBV theory, this study will provide a comprehensive understanding of the impact of Power BI implementation on FedEx. TAM will help assess employees' acceptance and usability of Power BI, while RBV theory will examine how Power BI serves as a valuable resource to enhance data management and decision-making processes, ultimately leading to a competitive advantage for FedEx.

5. Methodology and Methods

5.1 Research Design

This research design will employ a mixed method approach to investigate the impact of Power BI implementation on FedEx's competitive advantage. By utilizing both qualitative and quantitative methods, we seek to gather comprehensive and in-depth data to address the research questions effectively.

5.2 Research Context

The research will be conducted within the context of FedEx, a global logistics and shipping company. FedEx operates in a highly competitive industry where efficient decision-making and data management are crucial for maintaining a competitive advantage. By conducting our research within the specific context of FedEx, the findings will be directly applicable to the logistics and shipping industry. The insights gained from this study can help FedEx optimize its use of Power BI, improve decision-making processes, and enhance data management practices. Additionally, the research findings may have broader implications for other organizations in similar industries that are considering or undergoing Power BI implementation.

5.3 Methods for Data Collection

To collect data for this study a combination of quantitative and qualitative methods will be employed. The primary data collection methods will include:

- 5.3.1** Surveys: Questionnaires will be sent to employees at different levels within FedEx who have been involved in or affected by the implementation of Power BI. The surveys will consist of both closed-ended and open-ended questions to gather quantitative data on the perceived impact of Power BI on various aspects of the organization, such as efficiency, data accessibility, and decision-making.
- 5.3.2** Interviews: Individual interviews with key stakeholders, including managers, data analysts, and IT personnel, who have been involved in the Power BI implementation process. These interviews will allow for in-depth exploration of their perspectives, experiences, and challenges related to the implementation and its impact on decision-making and data management. The interviews will be semi-structured, enabling flexibility to probe further into specific areas of interest and to gather rich qualitative data.
- 5.3.3** Document Analysis: Relevant organizational documents, such as reports, memos, and documentation related to the Power BI implementation and its effects on decision-making and data management at FedEx will be analyzed. This will provide supplementary data to support and validate the findings from surveys and interviews.

By employing a mixed-method approach, we will be able to collect both quantitative and qualitative primary data. The surveys will provide quantitative data on the perceived impact of Power BI, while the interviews will offer rich qualitative insights into the experiences and challenges faced by stakeholders. The document analysis will complement and validate the findings from the surveys and interviews, providing a comprehensive understanding of the impact of Power BI implementation on FedEx.

5.4 Methods for Data Analysis

For the analysis of the collected data, NVivo software as well as Power BI will be employed. NVivo is a widely used qualitative analysis tool that allows for the systematic organization, coding, and categorization of data. The process will involve coding the data, categorizing the codes into themes and sub-themes, and analyzing these themes to derive meaningful insights and draw conclusions. The use of NVivo will enhance the efficiency and accuracy of the data analysis process.

5.5 Limitations of Proposed Research

It is important to acknowledge the limitations of this research. Firstly, the qualitative nature of the study limits the generalizability of the findings. The research will be conducted specifically within the context of FedEx, and the findings may not be directly applicable to organizations in different industries or regions. Despite these limitations, this research provides valuable insights into the role of Power BI in decision-making processes within FedEx and offers practical implications for logistics companies seeking to leverage this tool effectively. Future research can build upon these findings by conducting similar studies in different industries or regions to further enhance our understanding of Power BI's impact on decision-making in diverse contexts.

6. Discussion

6.1 Significance of Proposed Research

The significance of this proposed research lies in its exploration of how Power BI can be leveraged for competitive advantage in the specific context of FedEx. By investigating the role of Power BI in decision-making processes within a prominent logistics company, this research offers valuable insights into the potential benefits and challenges associated with the implementation of this tool.

The findings of this research can provide practical implications for not only FedEx but also other logistics companies seeking to enhance their decision-making capabilities through the effective use of Power BI. The study can shed light on the specific ways in which Power BI can be utilized to improve operational efficiency, optimize resource allocation, and enhance overall performance within the logistics industry.

Additionally, by examining the impact of Power BI on decision-making within a real-world organizational setting, this research contributes to the existing body of knowledge on the topic. It adds to the growing literature on the role of business intelligence tools in decision-making processes, particularly within the context of competitive advantage.

Overall, this proposed research holds significance for both academics and practitioners, as it offers valuable insights and practical implications for leveraging Power BI to gain a competitive edge in the logistics industry.

6.2 Research Contributions

This research will contribute to the existing literature on the role of business intelligence tools, specifically Power BI, in decision-making processes within the logistics industry. The specific contributions of this research can be summarized as follows:

- 6.2.1** Practical implications for FedEx and other logistics companies: The findings of this research can provide practical insights for FedEx and other logistics companies on how to effectively implement and utilize Power BI for decision-making. This can help these organizations optimize their operational efficiency, resource allocation, and overall performance.
- 6.2.2** Enhanced understanding of Power BI's impact on decision-making: By examining the use of Power BI within a real-world organizational setting, this research can contribute to a deeper understanding of the specific ways in which this tool influences decision-making processes. This can contribute to the existing body of knowledge on business intelligence tools and their role in enhancing decision-making capabilities.
- 6.2.3** Insights into the challenges and opportunities of Power BI implementation: This research will explore the challenges and opportunities associated with implementing Power BI within the logistics industry. By identifying and addressing potential barriers and highlighting best practices, this study can help organizations navigate the implementation process more effectively.
- 6.2.4** Valuable case study for future research: As a case study focused on FedEx, this research can serve as a valuable resource for future studies examining the use of Power BI or other business intelligence tools in the logistics industry. It provides a real-world example and a basis for comparison, enabling researchers to build upon the findings and conduct further investigations.

Overall, the contributions of this research can extend the understanding of Power BI's role in decision-making processes within the logistics industry, offer practical insights for organizations, and provide a foundation for future studies in this area.

7. Provisional Timeframe

Leveraging Power Bi for Competitive Advantage: A case Study of FedEx

	Project Start:	Mon, 7/24/2023							
			July, 2023	August, 2023	September, 2023	October, 2023	November, 2023	December, 2023	January, 2023
TASK	PROGRESS	START	END						
Proposal Submission: 29 of August 2023	10%	7/24/23	8/29/23						
Literature Review: September 2023	20%	8/30/23	9/30/23						
Data Collection: 15 September – 15 October 2023	30%	9/15/23	10/15/23						
Data Analysis: 15 October -20 November 2023	30%	10/15/23	11/20/23						
Dissertation Writing: 20 November- 20 December, 2023	10%	11/20/23	12/20/23						
Review and Revision: Ongoing									

The provisional timeframe outlined above represents a well-planned and realistic schedule for the completion of my dissertation project. The proposed timeline has been designed to ensure that each stage of the research process, from literature review to data collection, analysis, and dissertation writing, is given adequate time and attention.

I have considered the complexity of the research tasks, the availability of resources, and the potential challenges that may arise during the research process. I am confident that this proposed timeframe will allow me to conduct a thorough and comprehensive study while adhering to the required milestones and ensuring timely completion of the dissertation.

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