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Data Analytics and Visualization Dashboard for Supply Chain and Procurement as a Performance Assessment Tool

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ABSTRACT

Business owners, managers, and policymakers are overwhelmed by the volume of data available in their company's internal databases and external sources. The ability to represent meaningful and concise information that facilitates decision-making is challenging. Consider a technology firm such as Company A, where a large quantity of data is generated across numerous data sources covering all the North American locations. Traditionally, these data come in different formats such as email attachments (.pdf, .xlsx, .docx, etc.) and at different time intervals, e.g., daily, weekly, and some non-periodic. The data arrives at the team's folder on the Microsoft SharePoint platform, where team members calculate key metrics. This existing process is tedious, manual, and prone to computation or latency errors due to database refresh.

Data visualization design and automation serve as a solution to these issues by creating a method through which large volumes of data can be easily aggregated, represented, consumed, and understood. When data is visualized correctly, it is easy to draw simple, actionable conclusions.

This study will explore how modern data visualization tools can be used to help policymakers and managers understand supply chain operations and performance in a relatively short time, as well as make strategic plans by interacting with the dashboard. This would be achieved by creating a visualization dashboard for the real-time monitoring of Company A North America Supply Chain data across all departments using the Microsoft Power BI tool. This would help to see the big picture all at once and enable business owners, key managers, and policymakers to make sound business choices and judgments.

The overarching goal of this project is to automate the data collection and visualization process to help key business owners make informed decisions. This will allow the team managers to spend less time compiling large volumes of data and leverage the visualization tool to better identify and mitigate risk as well as proactively uncover valuable opportunities that lie in their databases.

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CHAPTER ONE
INTRODUCTION

➢ *Background of the Study*

Supply chain management involves the entire flow of goods or services from the raw components to the final product and to the final consumer, data is generated across different departments in the organization in different formats, this is where data analytics and visualization, which is becoming more and more important, comes in Supply Chain, Supply Chain Management and distribution Management characteristics have contributed to the Supply Chain integration, which generated an approach of extension and the supply chain that has manifested as the cooperative supply chain across intercorporate borders to increase the value across of the whole supply chain (Janvier-James, 2012).

Data analytics can be utilized to better comprehend and enhance supply chain operations. Risk assessment, expense minimization, and optimal planning are all aims that share common ground. A huge number of the organization Leaders can capture real-time data insights and take quick action, while half of the leaders employ Artificial Intelligence (AI) and predictive analytics to do the same. A faster data turnaround time improves supply chain data visibility and consumer demand analysis for businesses. Surprisingly, despite the advantages of analytics, approximately 60% of companies lack sufficient visibility across their supply chain (Nozari, et al., 2021). There are two obstacles to the widespread use of data analytics in organization. To begin, many managers lack the technical background to fully grasp the possibilities of data analytics. Secondly, most businesses lack a system for gathering and analyzing this information.

Data visualization tools are used in industry to support decision making. In business analytics, visualization is most useful to fully monitor all the activities and to undertake decisions in time. Data visualization helps users quickly make sense of mass data by presenting it in visual form (Baltzan, 2014; Iliinsky & Steele, 2011; Rodeh, Helman, & Chambliss, 2013), large quantity of data set is transformed into useful information, Data visualization helps individuals make sense of the ever-increasing stream of information which was bombarded from difference business aspect of the organization More than 76% of organization leaders said their data encounter greater disruptions currently, as a result, data tracking, modeling, simulation, is important. Procurement, inventory management, and logistics are the three most relevant departments in business management. Improved reactivity to supply fluctuations, inventory monitoring, and efficient transportation route planning are all made possible with the use of analytics (Mishra, et al., 2018). By giving the most complete and up-to-date information, cross-functionality is the most important contribution since it allows for faster insight and judgments.

➢ *Study Objective*

The project's primary objective automates data collection and visualization to empower key business owners with better information with which to make informed decisions. Managers of large teams will be able to spend less time generating data and more time using the visualization tool to proactively find large opportunities and detect and mitigate risk. More time may be spent on the teams by the managers because of this. Data proliferation which includes data visualization is essential to assist businesses in quickly identifying data trends, which would otherwise be a hassle, the pictorial representation of data allows managers to make sense of the quintillion bytes of data.

This study examined how modern data visualization techniques can be utilized to aid policymakers and managers in rapidly gaining an understanding of supply chain operations and

performance, and in turn, aiding them in the formulation of strategic goals using an interactive dashboard to track said performance. The Microsoft Power BI tool would be used to create a visualization dashboard for the purpose of real-time tracking of Company a's North American supply chain data, team members, executives, and policymakers would all benefit from having a more complete picture from which to make informed business decisions.

➢ *Problem Statement*

One of the issues that organizations face is the huge amount of big data that cannot be processed by humans, and it might consume a huge amount of time carrying out a comprehensive analysis. These problems can be resolved by the visualization and automation of data. As a result, a method that facilitates the collection, presentation, digestion, and processing of massive volumes of data need to be established. Less effort is required to form concise and applicable conclusions when data is presented properly.

➢ *Research Questions*

- How should organizations' data be visualized and automated, with what techniques to make other team members that is not familiar with the data be able to understand the content of it?
- How should the visualization interface be designed so that the management can quickly and easily get an overview of the progression of a project?

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- How should the data source be connected to the dashboard to ensure continuous update and real-life tracking of the Supply chain key metrics?

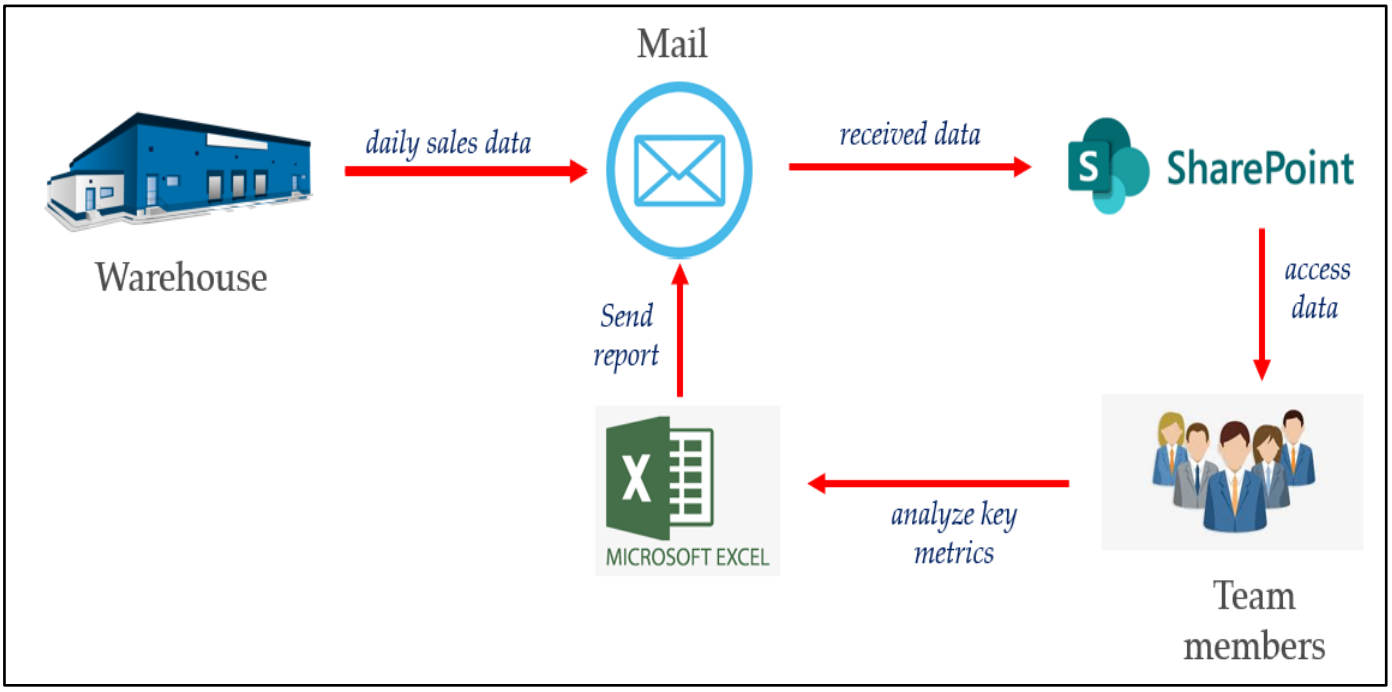

Fig 1 Current System.

This flow chart represents the current system that is adopted by most organizations' supply chain business units. This current system is not efficient because it is prone to computation or latency error, and difficult to track changes and trends over time. e.t.c.

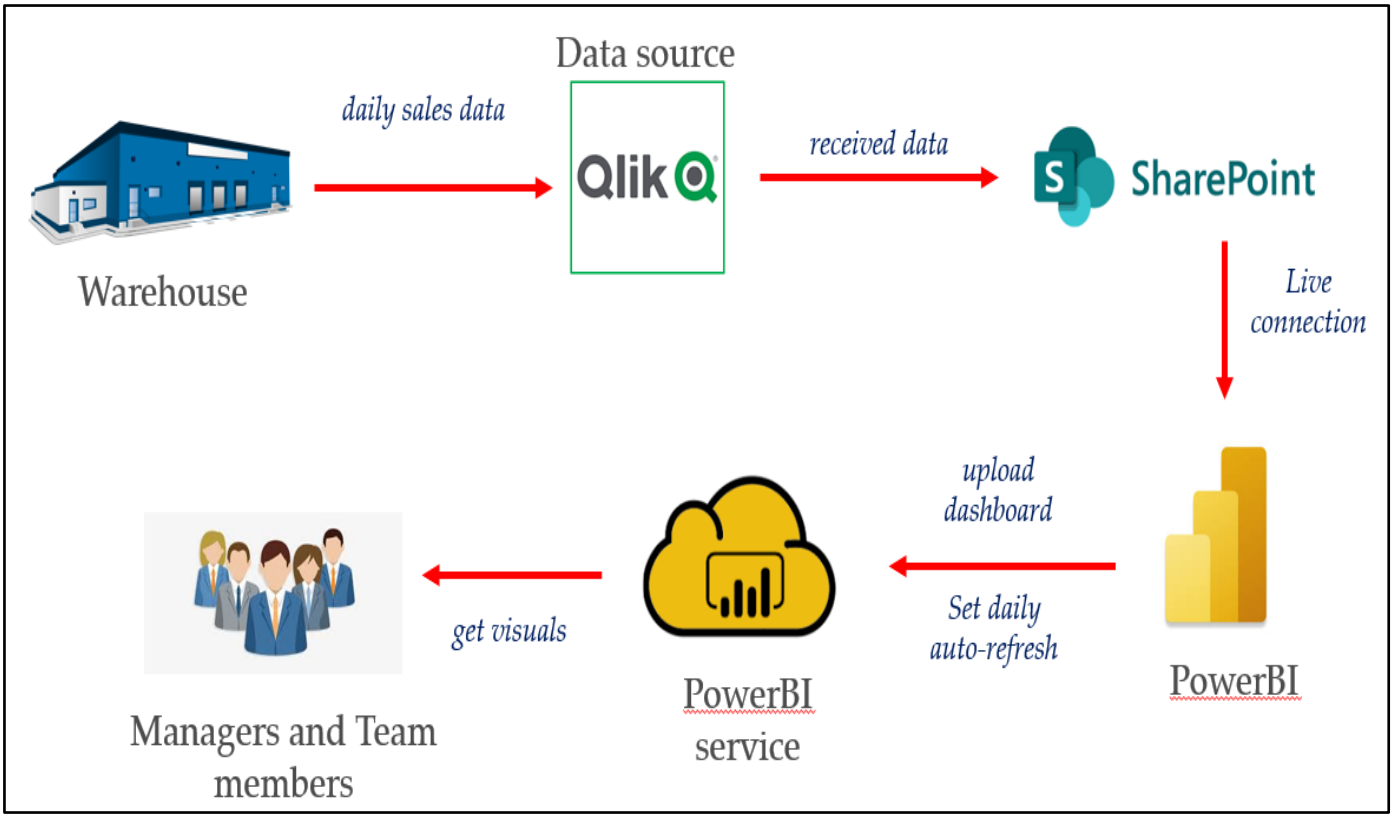

Fig 2 New System

The New system aims to incorporate Power BI as a data visualization tool to make the process easier in terms of data processing, data accessibility to team members and holistic reports for informed decision.

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CHAPTER TWO
METHODOLOGY

➢ *Research Methodology Approach*

This study presents an improvement on the current data capturing reports as shown in Figure 1 by following the underlisted sequence of activities to produce new data visualization systems for relevant business stakeholders in an organization. The definitions of the main steps are defined as follow:

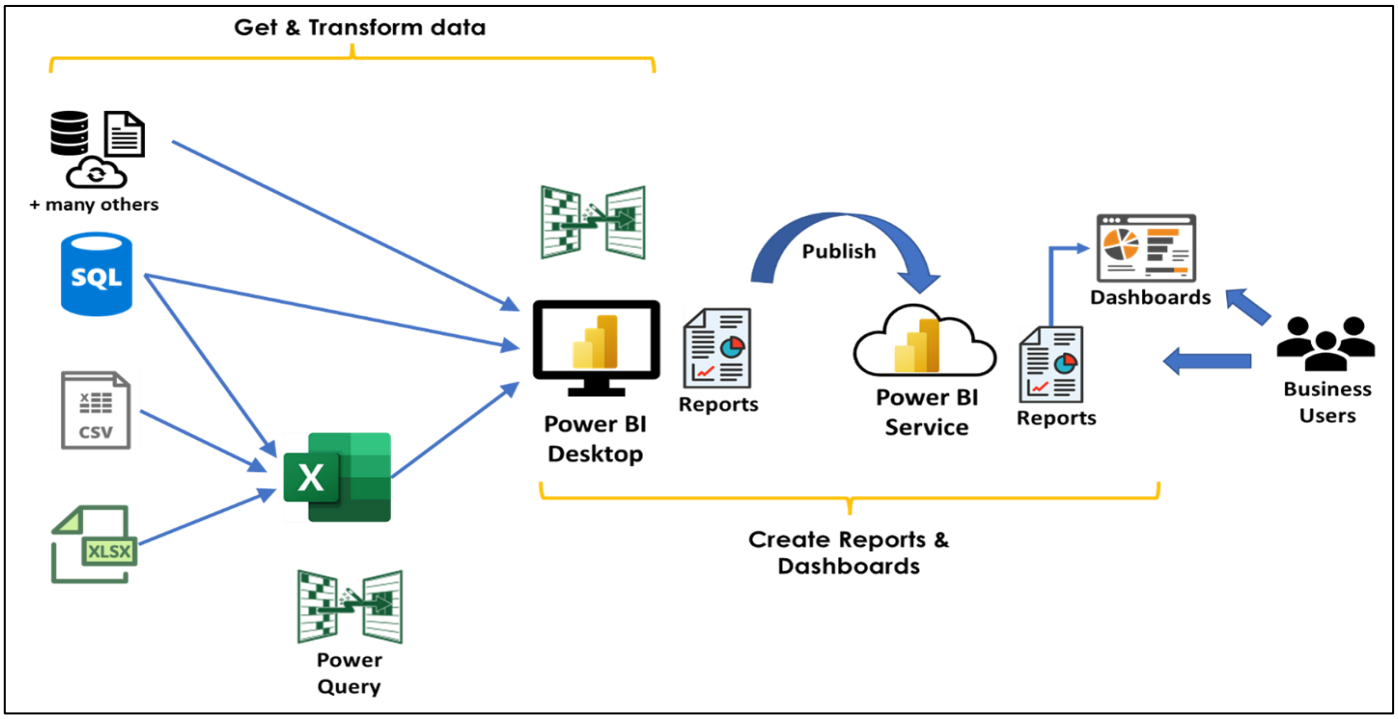

Fig 3 Data base Connection Workflow

- *Data Connection (SharePoint to Power BI):*

This involves the establishment of a connection of data source(s), which could be Excel file, SharePoint, email attachment, or image to the Power BI visualization tool. A SharePoint library app includes content and also metadata about the content in the form of columns, the data can be pulled into power Bi. All the imported data would be stored in a centralized location and could be accessed when needed.

- *Data Cleaning Using Power BI Queries:*

Reconstruction of the data takes place in the power query editor, this data processing involves the removal of empty columns in power query, eliminating errors, removing duplicate data, Data structuring for column headers and Names, removing irrelevant rows, Renaming Columns, Unpivoting Columns and ensuring that all the data are in the right format. All the listed action takes place in the Power Query Editor to ensure the data is documented for future reference. Then, the data will always be formed in the method that has been indicated because the query will apply your steps automatically whenever it establishes a connection to the data source. Power Query Editor modifies only the selected data view, so one can be rest assured that no permanent changes will be made to the primary data set (Li, Hao & Yu, 2018).

- *Create Relational Connection Among Tables:*

This establishes Power BI Model relationships that show how two or more tables are linked together. Specifically, a column is linked from one table to another table's column to establish connections that are needed for analysis. There are 3 different types of connection, one-to-many relationship; this is the relationship between a customer and an order, one-to-one; example is customer discount table and the customer table, and many-to-many relationship; an example is a direct relationship between products and customers, in which a customer can buy many products and the same product can be bought by many customers.

- *Data Visualization:*

At this point, the tools don't only show KPIs more clearly, they unify data and apply Al-driven analytics to reveal relationships between KPIs, the Market trend, the kind of data representation that is appropriate for visualization is selected amongst many in the visualization pane. It also shows the stage where the data performance is demonstrated and makes the data easier to understand.

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- *Upload Dashboard to Power Service:*

After completing the visualization process, the data visualization dashboard is uploaded to Power BI Service, which is a platform that enables an administrator to determine the behavior of the uploaded dashboard and also share via email. With the dashboard in Power BI Service, an auto-refresh would be set-up, and different managers would be given access to the dashboard, which could be viewed and downloaded as reports when needed.

With these steps carried out, business users would be enriched with cost-effective data for on-time decision making, which would have a direct impact on the competitive advantage of the organization.

➢ *Data Visualization Tools*

These are software applications that provide a visual representation of data in the form of interactive charts, graphs, heatmaps, and dashboards for data analysis functions. The tools make it easier for business processors to understand and work with massive amounts of data (Ali, et al., 2016). There are several visual representations and techniques that can be used to represent data depending on what type of data that is analyzed. Some representations and techniques are more suitable than others.

- *Line Charts*

One of the most adaptable charts is the line chart as shown in Figure 4, which displays quantitative data by drawing lines between data points. Depending on how the line between data points is formed, the chart is often represented in one of three ways: stepped, segmented, or smooth.

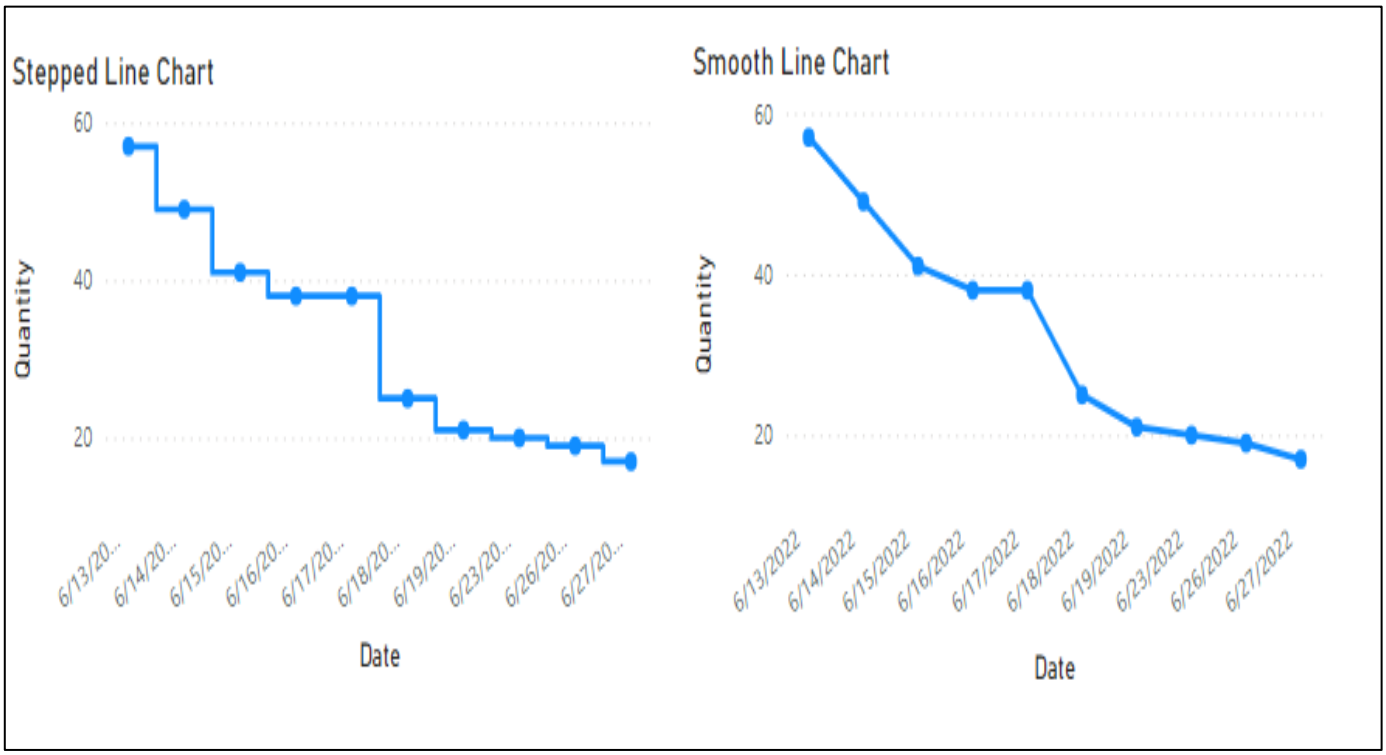

Fig 4 Examples of Line Charts (Stepped and Smooth)

The smooth curve can be used when the exact value is not the main goal, but rather to give an approximation of the data. and also, the stepped line chart is used plotting time discrete data where no values are defined in between data points.

- *Bar Chart*

Bar chart shows the exact value of the selected data as the objective. Bar Charts are a good choice because column lengths may be easily compared while *column charts* are great for showing change over time. Both nominal and ordinal data can be displayed using column charts, and *stacked column charts* can be used in place of a pie chart to show data with a part-to-whole connection.

Rectangular bars with lengths proportionate to the data value can be used in the column chart and the stacked column chart to display data. The values of the data are piled one on top of the other in the stacked chart as opposed to being displayed side by side in the column chart, stacked column charts are more effective when comparing various portions with the overall. Comparing columns that don't start at the same baseline is challenging. Select tiny multiples if the goal of your chart is to compare multiple portions across all of your totals.

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- *Pie Chart:*

Pie chart is used to illustrate the contribution of different values to a total. For instance, to see the total sales split by product category. You can then see the percentage contribution of each product category to the total revenue. This is also similar to the Donut chart.

- *Area Chart*

Area charts emphasize the magnitude of change over time, and can be used to draw attention to the total value across a trend. For example, data that represents profit over time can be plotted in an area chart to emphasize the total profit.

- *Map*

Maps are a visual representation of information about the world. They demonstrate the size and shape of countries, the locations of landmarks, and the distances between them to visualize the world. it can be used to track the area that has the largest quantity of order per time, there are different type of map in Power Bi, for instance Heat Map, Area Map e.t.c we can show geographic-based or location data values on respective areas of the map according to the location.

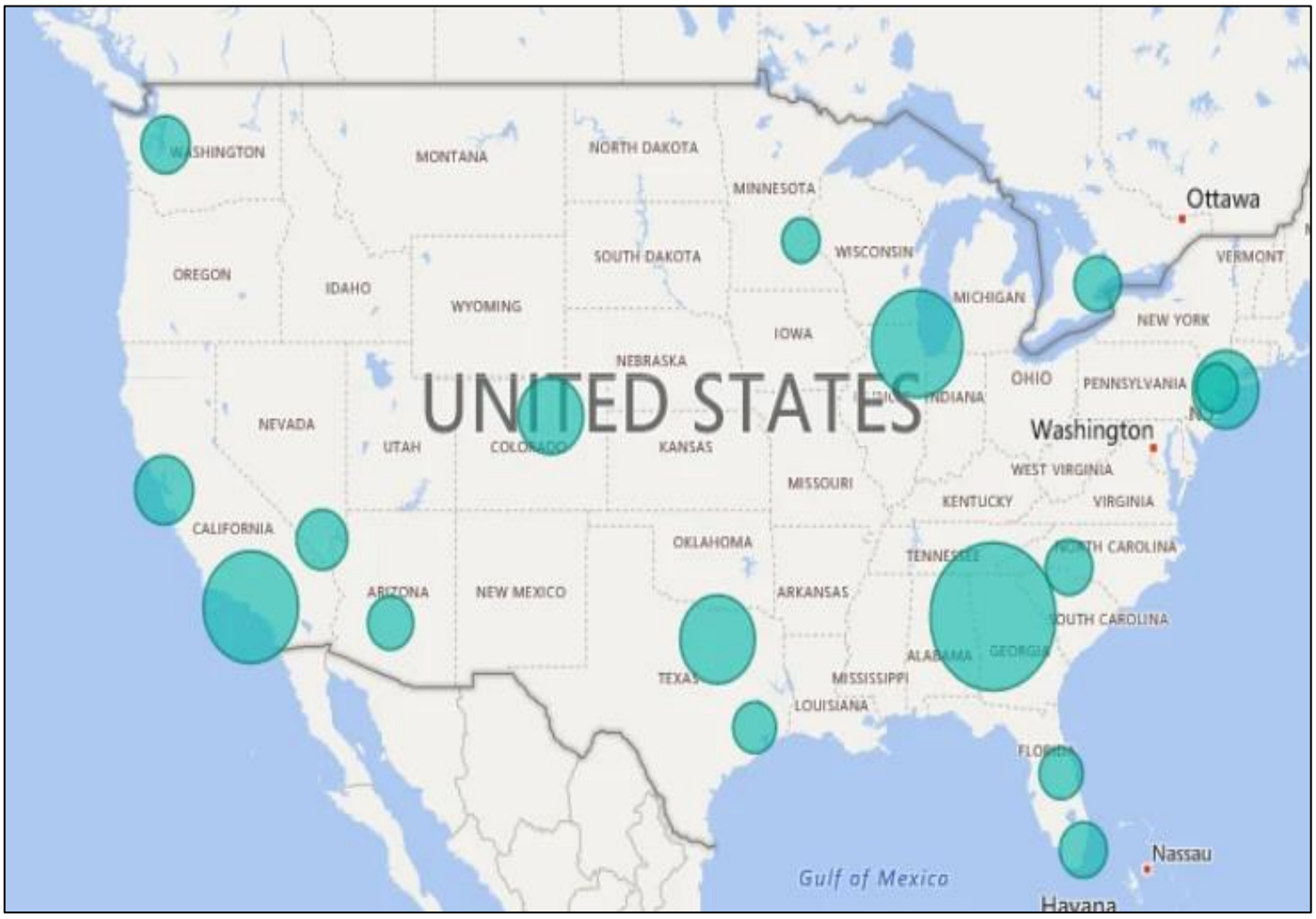

Fig 5 Map Showing Some Regions Where Activities are Performed in the US

- *KPI*

Key Performance Indicator is a visual that helps to communicate the amount of progress made towards a measurable goal. The intention of the KPI is to help you evaluate the current value and status of a metric against a defined target. It is used to track progress and performance of sales or warehouse; it also measures distance to a goal.

In general, although there are various types of visuals, some are more appropriate for conveying the main point to decision makers based on their desired output. Supply chain networks must be transparent and dependable for multinational organizations. Waste is exacerbated by inefficiencies and bottlenecks, which also hinders the ability to adjust to changes in demand. Delays in operations, increased consumer anxiety, and an organization's inability to achieve and prove compliance with regulations are all the result of a lack of visibility.

➢ *Characteristics of Data Visualization Tools*

The following are some of the characteristics of data visualization tools:

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- *Interactive Data Visualization Features*

These include filtering, which allows users to reduce or specify the data that is displayed in the visualization; drilling, which allows users to move from one visualization to another while giving the ability to send an action from the dashboard; and zooming/panning, which is useful to see a specific detail in a visualization.

- *Real-Time Updates*

These enable stakeholders to make better decisions that are based on actual data than on intuition by letting users update the tools in real-time. They are mainly automated to display varying information or programmed based on a click of a mouse or keystroke on the keyboard.

- *Designed for Technical and Non-Technical Users*

The types of data visualization in use must consider the audience's expectations, which could be data experts or business managers. Therefore, the tools are aimed to simplify data analysis with the goal of enhancing decision making by relevant stakeholders.

➢ *Data Visualization Tools*

These are examples of common data visualization tools: Power BI, Tableau, Fusion Charts, High Charts, QlikView, Plotly, Sisense, Data wrapper, etc. (Bikakis, 2018; Po, et al., 2020).

- *Power Bi*

For this project, Power BI was used. Power BI has good speed at analyzing large amounts of data. Dashboards and spreadsheets are also produced as visual representations. Dashboards built with Power Bi can help propel a company forward with their insightful data. If the underlying operating system and hardware are properly configured, Power Bi products will always function in a virtualized environment. Data scientists use Power Bi to conduct exploratory data analysis using the tool's extensive visual analytics.

Maps, charts, and other visual elements are used in data visualization to depict a collection or set of data. A Dataset's trend, insights, patterns, and other relationships can be quickly and easily grasped with the aid of data visualization. To better understand their data and provide the best possible service to their customers, many large and small organizations use Power Bi data visualization tools.

- *Advantages of Power BI*

The ability to interact with large amounts of unstructured data and generate different types of visualizations, it has built-in tools that make visuals that will definitely be noticed. You can also explore the data at various depths and in various ways by switching between the various representations available to you.

➢ *Extensive Analysis*

Companies can use Power Bi to look into the future and analyze data without predetermined outcomes. Visualizations allow you to examine the same data from many perspectives. The data can be hypothetically visualized in a different fashion, and new components can be added on the fly so that you can make comparisons and perform analyses. It is user friendly anybody, regardless of their ability level, can understand the report created.

- *Dashboard*

Dashboard is a tool that many businesses use to monitor, examine, and present data - typically to acquire understanding of the general performance of an organization, division, or particular procedure. In order to assist businesses in extracting relevant information from those sources and presenting it in user-friendly ways, dashboards can be used to connect a variety of various metrics, data sources, APIs, and services. Data dashboards group and present significant data so you can quickly grasp it and find out the most relevant questions and answers for your business, it makes it easier for decision makers at companies to get an overview of their data and help them draw decisions and conclusions (Jacob Nyman;Viktor Sandberg., 2020). Performance dashboards help remedy the information overload, which is when companies are presented with too much information to process. This is a problem many companies face with various different Business intelligence (BI) and Enterprise Resource Planning (ERP) systems (Ogan M. Yigitbasioglu and Oana Velcu; 2012).

✓ *Dashboard Design*

Dashboard usage varies from organization to organization. There are three different kinds of dashboards, according to Rahman et al. (2012): strategic, tactical, and operational. Before beginning the dashboard's design, the developer must be aware of these three distinct sorts of dashboards. The first kind of dashboard is a strategic dashboard, which assists executives in communicating strategy, reviewing performance, and keeping track of how well strategic objectives are being implemented. The tactical dashboard, which displays more specific information than the operational dashboard, is the second type of dashboard. To manage specific projects or a department's performance, tactical dashboards are employed. The operational dashboard is the third sort of dashboard, which aids front-line staff in viewing the most recent data required to manage and control operational activities. The developer

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therefore needs to study the features that suit the dashboard's purpose before designing it. A review of 26 different dashboards was done by Rahman et.al to identify the type they belong to and the features that are included in the implementation.

✓ *Dashboard Layout*

The dashboard success is a result of its design and how well it displays information, a dashboard that enables end users to investigate the data you're presenting them with is called an exploratory dashboard. With the intention of letting them delve in and figure out the answers on their own, you are offering them a dashboard. As you can't be sure what your end user will ultimately want to find, all you know is that you want to make it possible for them to find it, these dashboards tend to include more filters to allow for more custom slicing and they tend to suit a stricter style. A dashboard that has certain prepared points and stories that you want to communicate to the end user is called an explanatory dashboard. Since you've already narrowed the data down to what you need to use to convey your story, these dashboards typically include fewer filters and opportunities for interaction. Instead of providing CEOs with data to help them come up with their own explanations, presentations frequently use these dashboards to explain events that have already occurred (Baucke, 2022).

➢ *Supply Chain Metrics*

These are defined by establishing specific parameters that are used in quantifying and defining supply chain performance. They can be utilized in the inventory accuracy and turnover metrics, to the inventory-to-sales ratio. The principal categories of supply chain performance metrics are time, cost, and quality (Chae, 2009; Elrod, et al., 2015). For this study, the following would be used as common metrics to measure supply chain performance and a dashboard is created using power Bi to visualize, analyze and automate the data that measures the metrics.

- *Turn Around Time (TAT):*

  It shows the efficiency of the entire supply chain process; measures excess and inventory sold at a given time.

- *Order To Delivery (O2D):*

  This stands for On-time delivery and on-time shipment. It shows how long it takes to complete a customer order in a cycle. The process is usually agile and represents the percentage of orders that are delivered in full and on time without incident.

- *Demand Satisfaction Rate (DSR):*

  This is the total amount of demand that is met with the stock availability per time, to improve customer satisfaction.

- *Perfect Order Index (POI):*

  It is a performance indicator that measures the error rate of the entire supply chain process.

- *System Usability Test Questionnaire*

Table 1 System Usability Test Questionnaire

		1 Strongly Disagree	**2**	**3**	**4**	**5 Strongly Agree**
1	I found the Dashboards unnecessarily complex					
2	I found the various functions in the dashboards were well integrated					
3	I felt very confident using the dashboards					
4	I needed to learn a lot of thing before i can get going with this dashboard					
5	I found the dashboard very cumbersome to understand					
6	I thought there was too much inconsistency in the layout					
7	I think i will need a support of a data expert to be able to use the dashboard					
8	I think i will like to use this system frequently					
9	I would imagine that most people will learn to use this very quickly					
10	I thought the dashboard was easy to use					

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CHAPTER THREE
USER TEST - AN ILLUSTRATIVE CASE-STUDY

From the problem statement in Chapter 1 of this project and the aforementioned steps in Chapter 2, an illustrative case-study is considered for demonstration of how this project can be applied in real-life.

Real users attempting real tasks are used in user testing to discover the key usability issues that may arise. It is also particularly helpful for gathering input on subjective aspects of usability, such as satisfaction. Six to eight test users are typically enough to discover the majority of the significant usability concerns, according to research by (Scholtz, 2006) and (Spolsky, 2001). Analyses of this nature based on the user test's objectives and the data that was collected. Time taken and amount of interactions, such as the number of clicks or filters, are typical areas that are analyzed. These tests are done in one-on-one sessions where the test user is given access to the dashboard, then the test user responds to questions. Self- reported metrics such as Systems Usability Scale (SUS), Users were made to answer a set of 10 simple questions about the subjective assessments of usability using the dashboard by giving a grade, which range from 1 (strongly disagree) to 5 (strongly agree), the questions used are listed below. after the response collection the test's final score was determined using the below equation.

$$\frac{((\Sigma Score_{even} - 1) + ((\Sigma 5 - Score_{odd})).2.5}{n}$$

Where n is the number of participants that have taken the questionnaire, $Score_{even}$ is the score of all the even questions also *Score odd* is the score of all the odd questions received.

The below table shows the summarized answer from the system usability test's questionnaires. The numbers in the table represent the amount and percentage of the people who chose that answer.

Table 2 User Test - An Illustrative Case-Study

		1 Strongly Disagree	**2**	**3**	**4**	**5 Strongly Agree**
1	I found the Dashboards unnecessarily complex	5 (62.5%)	3 (37.5%)			
2	I found the various functions in the dashboards were well integrated				2(25%)	6(75%)
3	I felt very confident using the dashboards				1(12.5%)	7(87.5%)
4	I needed to learn a lot of thing before i can get going with this dashboard	8(100%)				
5	I found the dashboard very cumbersome to understand	7(87.5%)	1(12.5%)			
6	I thought there was too much inconsistency in the layout	6(75%)	2(25%)			
7	I think i will need a support of a data expert to be able to use the dashboard	7(87.5%)		1(12.5%)		
8	I think i will like to use this system frequently				3(37,5%)	5(62.5%)
9	I would imagine that most people will learn to use this very quickly					8(100%)
10	I thought the dashboard was easy to use			1(12.5%)	5(62.5%)	2(25%)

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CHAPTER FOUR
RESULTS AND DISCUSSION

The main outcome of the project is an automated and interactive dashboard of Company A Supply Chain data. The Dashboard that was built is to enable the user to have an interactive dashboard and be able to drill information to obtain further details, according to Schneiderman Yi et.al this is the important feature when visualizing data, the user can get a more abstract overview as well as more details.

➢ *Data Connection/Automation*

Power Bi was used to build a dashboard, which was connected to the SharePoint to fetch the data in real-time. The report was then published as a web link in the Power Bi server, with all team members given access to monitor the performance of the Supply chain metrics in real-time. An automated schedule was set up to refresh the data from the server two (2) times a day at different intervals 5:00a.m, and 6: 00 p.m.) to ensure that the most up-to-date information is reflected on the dashboard.

code is used to connect Power Bi to SharePoint using Power Query

➢ *Created Dashboards/Visualization*

In this process I converted data into visuals that displayed collected data by using various charts, graphs or other visualization types.

- *Harvest Dashboard*

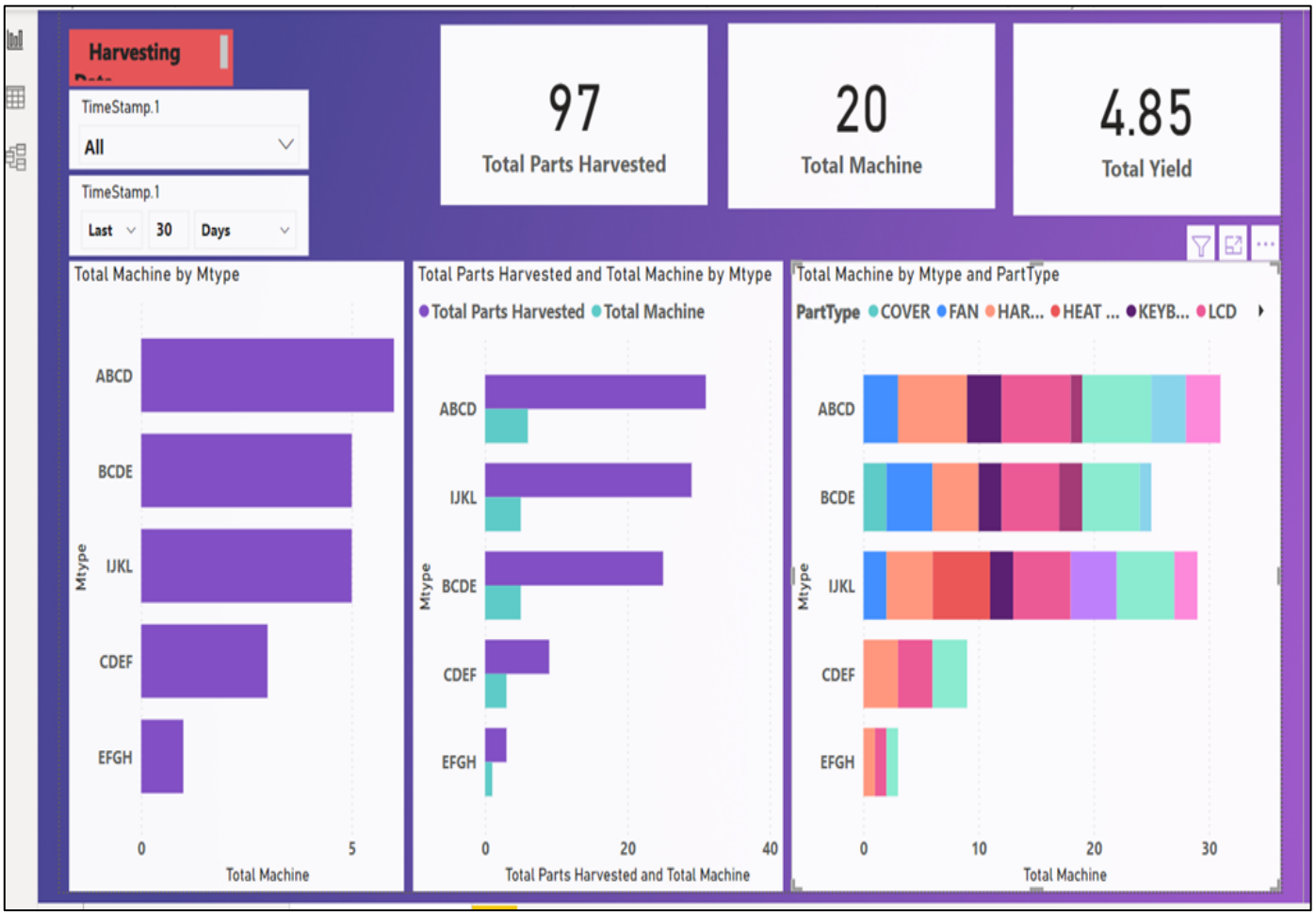

Fig 6 Harvesting Dashboard

In the Figure 6 dashboard we have three cards displaying the total machine, Total part harvested from the machine and the Total yield, this provides direct information to team leader and Decision maker. The next visualization tool used is stacked column chart which is useful to combine the Part Name and the Machine type that each part was gotten from, however this is useful to make a quick comparison between two or more machine type per given time, the next visual used is the Column chart, this shows the machine type that has the highest quantity. and also, the Time Stamp Filter which can be used to select a date or multiple dates.

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- *O2D (Order to Delivery) Dashboard*

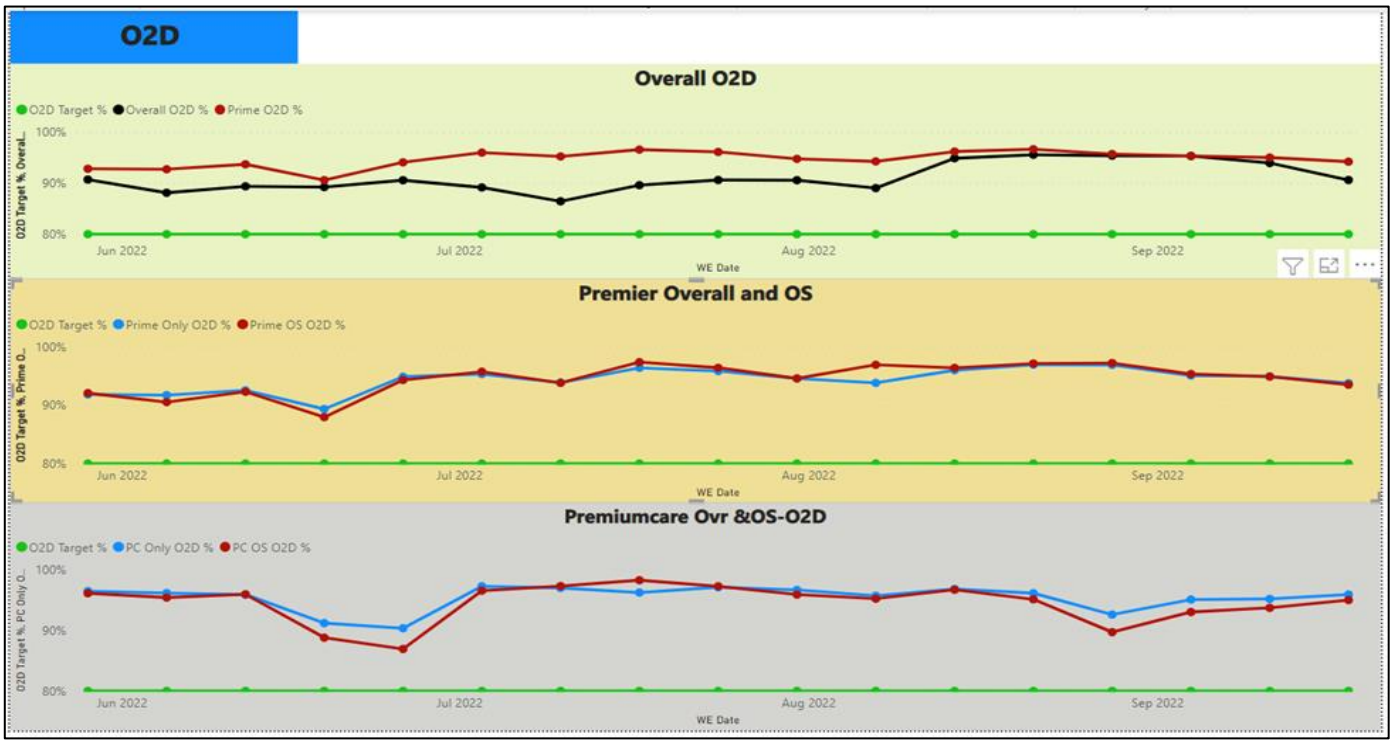

Fig 7 O2D (Order to Delivery) Dashboard

The Figure 7 have three line chart that shows the lead time of customer order base on the customer membership categories,(Prime, Premier Care and the Overall), it shows the percentage of order that was delivered on time, the green line represent the O2D Target, the red line represent Prime O2D performance, and the black line represent the Overall O2D performance (Prime+ Premier Care + Premier Care Onsite) per given days, this chart shows the significant logistics overview in a glance, and efficiency of deliveries.

- *Heatmap*

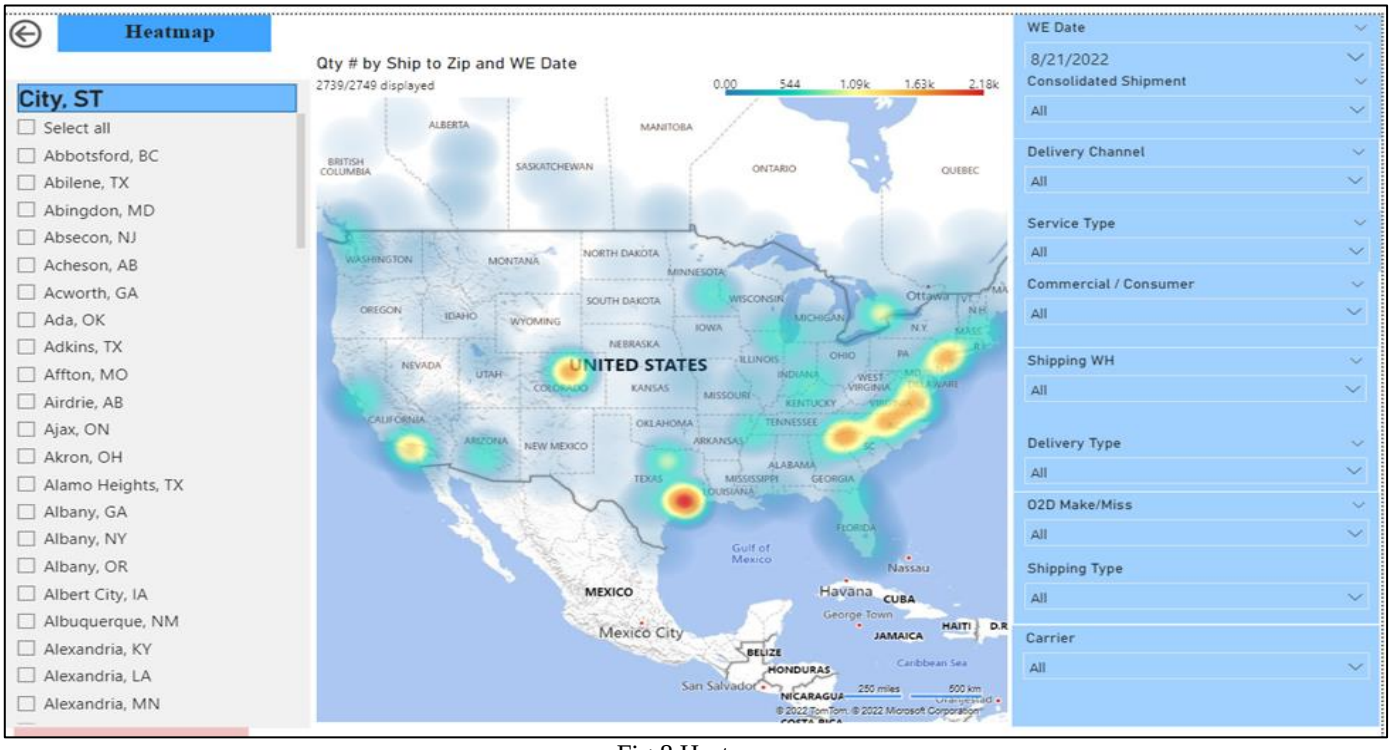

Fig 8 Heatmap

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The heat map shown in figure 8, shows the location that has the highest order within the United State through dark heated color. This visual was used to decide on where to build a warehouse facility within North America.

- *TAT Dashboard*

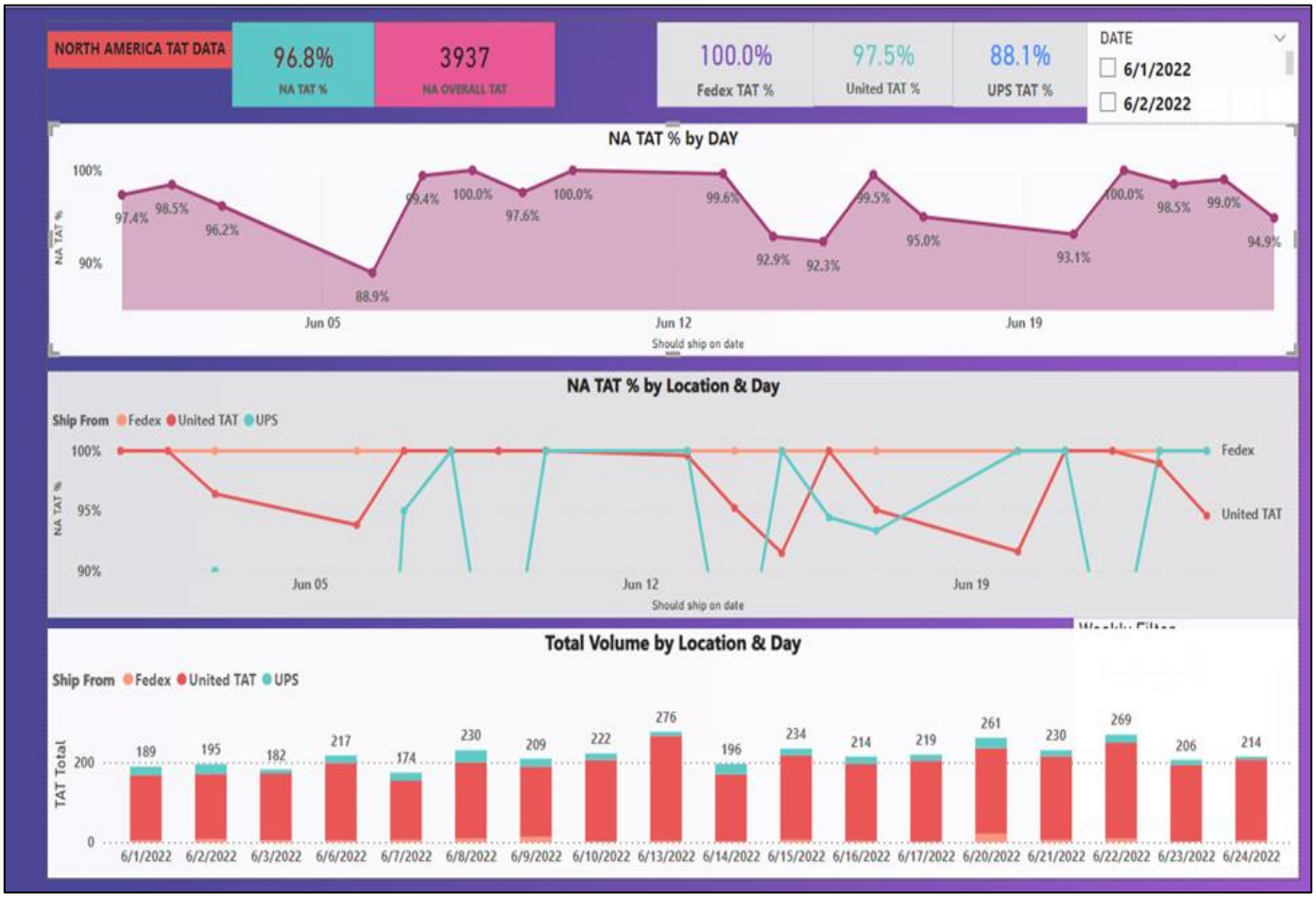

Fig 9 TAT Dashboard

The five cards in figure 9 show the percentage of the time taken to fulfill customers order request, The NA TAT is the overall percentage of the time taken to fulfill order, NA Overall is the Total order for the given day, and the Shipping Companies TAT (Fedex TAT, UPS TAT, and United TAT), The line chart shows the delivery performance of each of the company per day, however this is useful to make a quick comparison between three companies.

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CHAPTER FIVE
CONCLUSION

A dashboard is used to display a live company status and track an organization's performance. By providing information to end users, a good dashboard is able to facilitate decision-making and to immediately prompt actions. In this project, a supply chain department of Company A, facing a large amount of data every day, required automated data collection and visualization. To achieve better data visualization, Microsoft Power BI is integrated as the business intelligence tool to visualize and display the key metrics of Supply chain data through the different interactive dashboards. The existing process of data collection and retrieval was first reviewed and then a new process was proposed to handle data connection, data cleaning, visualization and report automatically. This process allows the data sources to be connected to a centralized port by connecting them to SharePoint for easy data retrieval, up-to-date dashboards for decision making are created, and comprehensive reports are made available to the business users. The result of usability test also helps to emphasize the importance of the automated data connected and dashboards created Overall; this project serves as a performance assessment tool by creating visualization dashboards that are functional and easy to use while supporting key business operations and decision making.

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REFERENCES

[1]. Janvier-James, A.M. (2012). A new introduction to supply chains and supply chain management: Definitions and theories perspective. *International Business Research, 5*(1), 194-207. doi:/10.5539/ibr.v5n1p194
[2]. Nozari, H., Fallah, M., Kazemipoor, H., & Najafi, S.E. (2021). Big data analysis of IoT-based supply chain management considering FMCG industries. *Business Informatics, 15*(1), 78–96. doi:10.17323/2587-814X.2021.1.78.96
[3]. Mishra, D., Gunasekaran, A., Papadopoulos, T., & Childe, S.J. (2018). Big Data and supply chain management: A review and bibliometric analysis. *Ann Oper Res 270*, 313–336. doi:10.1007/s10479-016-2236-y
[4]. Ali, S.M., Gupta, N., Nayak, G.K., & Lenka, R.K. (2016). Big data visualization: Tools and challenges. *2016 2nd International Conference on Contemporary Computing and Informatics (IC3I)*, 656-660. doi:10.1109/IC3I.2016.7918044
[5]. Bikakis, N. (2018). Big data visualization tools systems. *Encyclopedia of Big Data Technologies, Springer*. ATHENA Research Center, Greece. doi:10.48550/arXiv.1801.08336
[6]. Po, L., Bikakis, N., Desimoni, F., & Papasteranatos, G. (2020). Linked data visualization: Techniques, tools, and big data. *Synthesis Lectures on the Semantic Web: Theory and Technology*. Morgan & Claypool Publishers. doi:10.2200/S00967ED1V01Y201911WBE019
[7]. Chae, B.K. (2009). Developing key performance indicators for supply chain: An industry perspective. *Supply Chain Management, 14*(6), 422-428. doi:10.1108/13598540910995192
[8]. Elrod, C., Murray, S., & Bande, S. (2015). A review of performance metrics for supply chain management. *Engineering Management Journal, 25*(3), 39-50. doi:10.1080/10429247.2013.11431981
[9]. Edcuba. (2022). *(Dashboard Sample*).
[10]. Victor & Sandberg (2022).