ISTM 684 –

Professional Internship Report

Arpita Deshmukh

MS in Management Information Systems

Name: Arpita Deshmukh

UIN: 327002589

Summer 2019

About Strategic Material Inc.

Introduction

Strategic Materials converts recyclable materials into valuable products that include the products used in our daily lives: food and beverage containers, fiberglass, wall insulations, and other consumer products. Headquartered at Houston, Texas, Strategic Materials, Inc. (SMI) began their journey in 1896. SMI is a leading recycling company with its facilities in the United States, Canada, and Mexico with nearly 50 plant locations in the US.

Products

SMI operates in two divisions: The glass division (Strategic Materials, Inc.) and the plastic division (NexCycle Canada). It is the largest glass processor in North America. Processed glass and plastic are used in products to increase the efficiency of the products for the customers and helps in the conservation of the earth's resources. [1]

Divisions

Glass Division

The Glass division is the largest business segment for SMI [2]. The company has been processing glass for more than 100 years. Processed glass is converted into a raw material called cutlet and is sold majorly to fiberglass and glass container manufacturing companies for use in their processes [2] Glass manufacturers use recycled glass which not only improves sustainability but also saves them 30 % in energy cost [4]

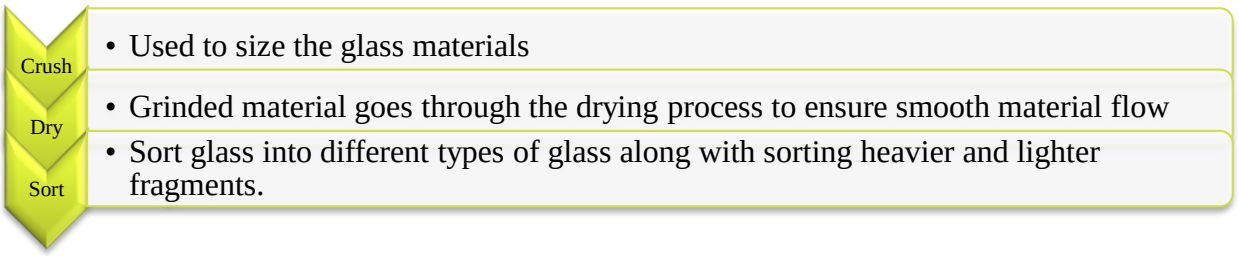
Plastic Division

NexCycle is the largest plastic processor in Canada. Plastic undergoes several processes and the end products are sold to several industrial customers with the production of film for the plastic bag market being a major application. Moreover, recycling plastic takes 88% less energy than making plastic from scratch [5]

Process Flows

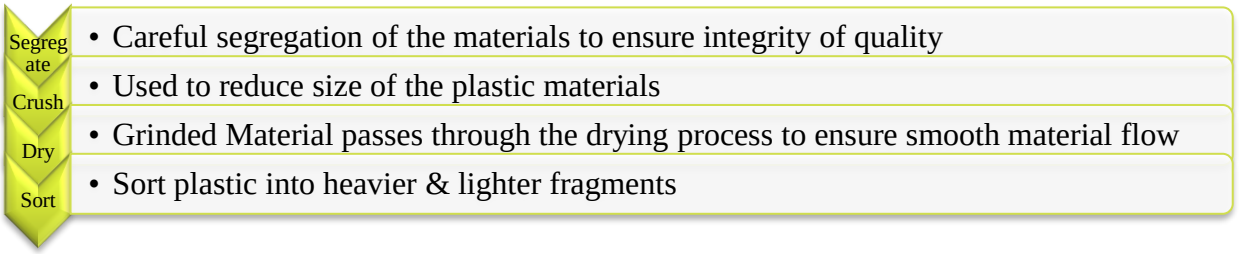
Glass

Collected glass is in a different color, type, and sizes. These materials undergo finely tuned production processes to produce a product that meets the specifications

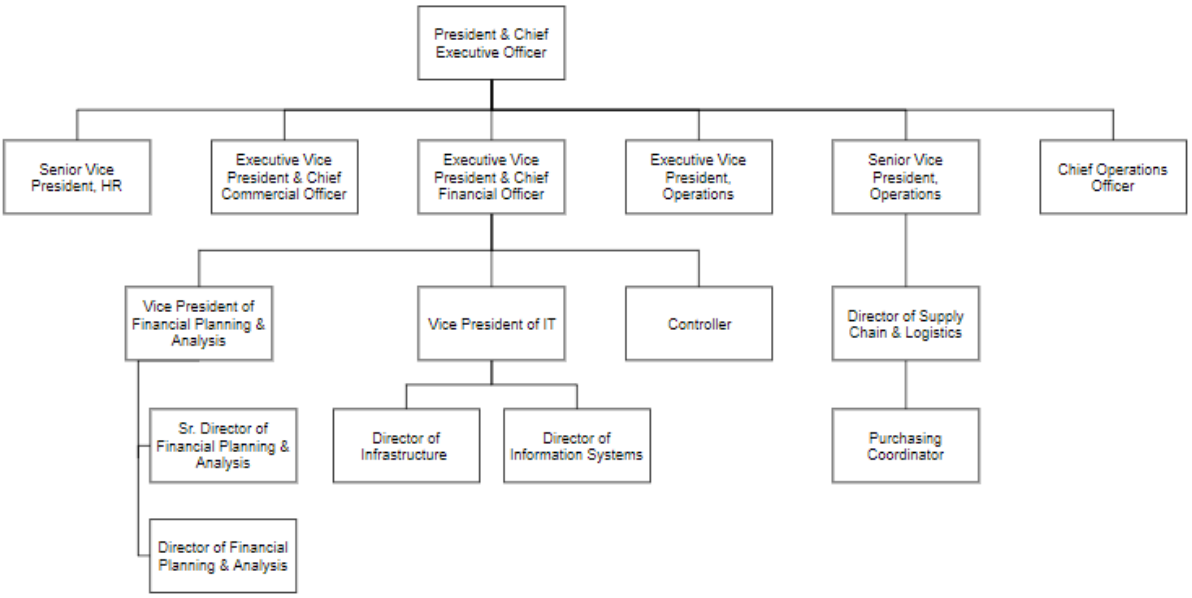


Plastic

Customer materials are carefully segregated for quality integrity and then size reduced, re-melted, filtrated and re-extruded into resin for use in their material blends. These resins can be further blended and compounded if required.



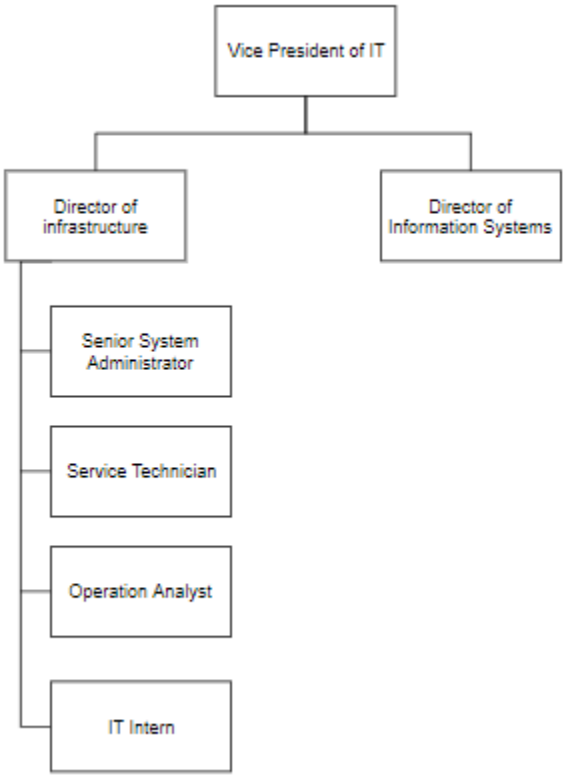
SMI Organizational Chart



Information Technology Department

The IT department at SMI resides in Houston, Texas which includes 6 employees. Some of the functions that SMI-IT is responsible for include setting up systems & computers, keeping the software updated, handling in-house securities, monitoring the network, giving access rights, collaborating with the vendors, etc.

IT Organizational Chart



My Role in IT

I worked as a Business Intelligence Analyst Intern at Strategic Materials, Inc. My job involved analyzing business processes & requirements, collaborating with other departments of the company to gain in-depth information about the requirements, and developing & managing BI solutions for the same. This role also involved integration with the company database and data warehousing wherein ETL operations were performed in order to use only the required data from source data. Throughout my Internship, I reported to Tom Lytle who is the Vice President of IT. Moreover, I closely worked with the executive operations team at SMI that involved recording the

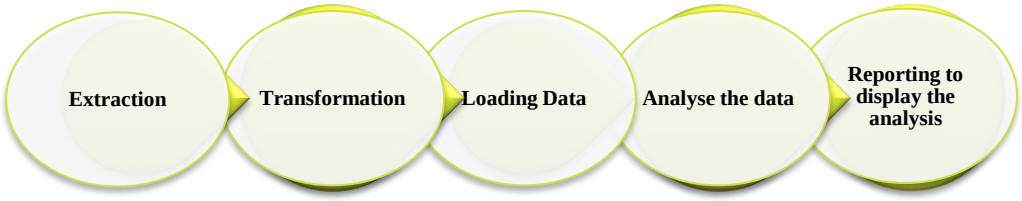
requirements and building dashboards to help them have a quick outlook & visualize the analytics that mattered.

ETL and Business Intelligence

ETL stands for Extract, Transform and Load. It is a process of extracting the data from the data source, transforming it into the desired format and then load it into a database wherein it could be retrieved later. While working on the assignment, I worked on the BI tool, Targit, which has an interface like Power BI. This tool contains interfaces to perform data visualizations as well as data warehousing. Moreover, I used SQL statements to perform the manipulation of data.

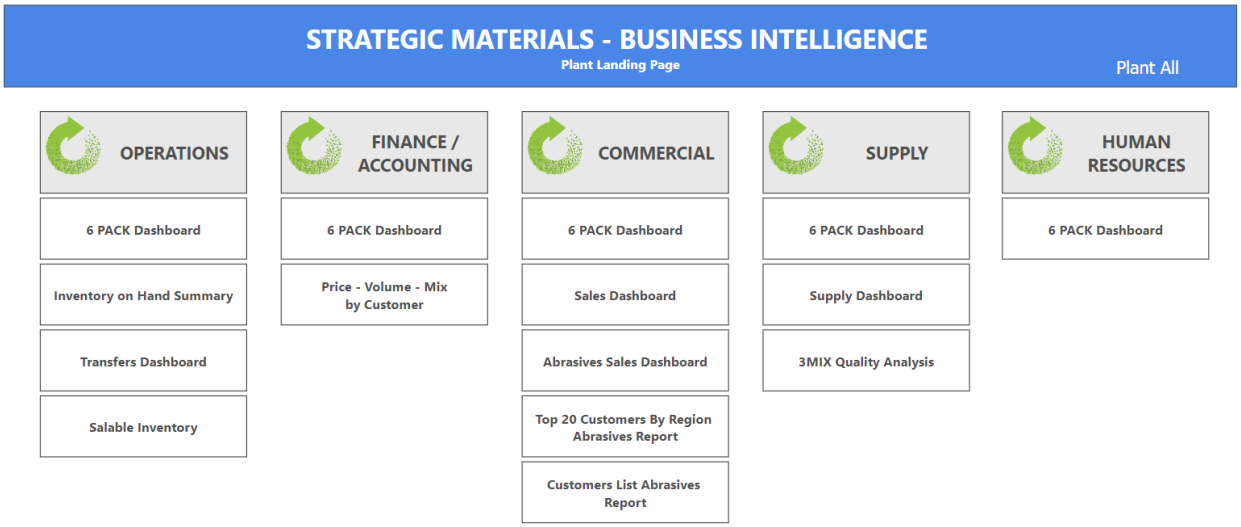
On the other hand, Business intelligence is used to perform visualizations on data coming from multiple data sources. It is used to analyze historical data and arrive at decisions and business strategies that would help in maximizing the benefits.

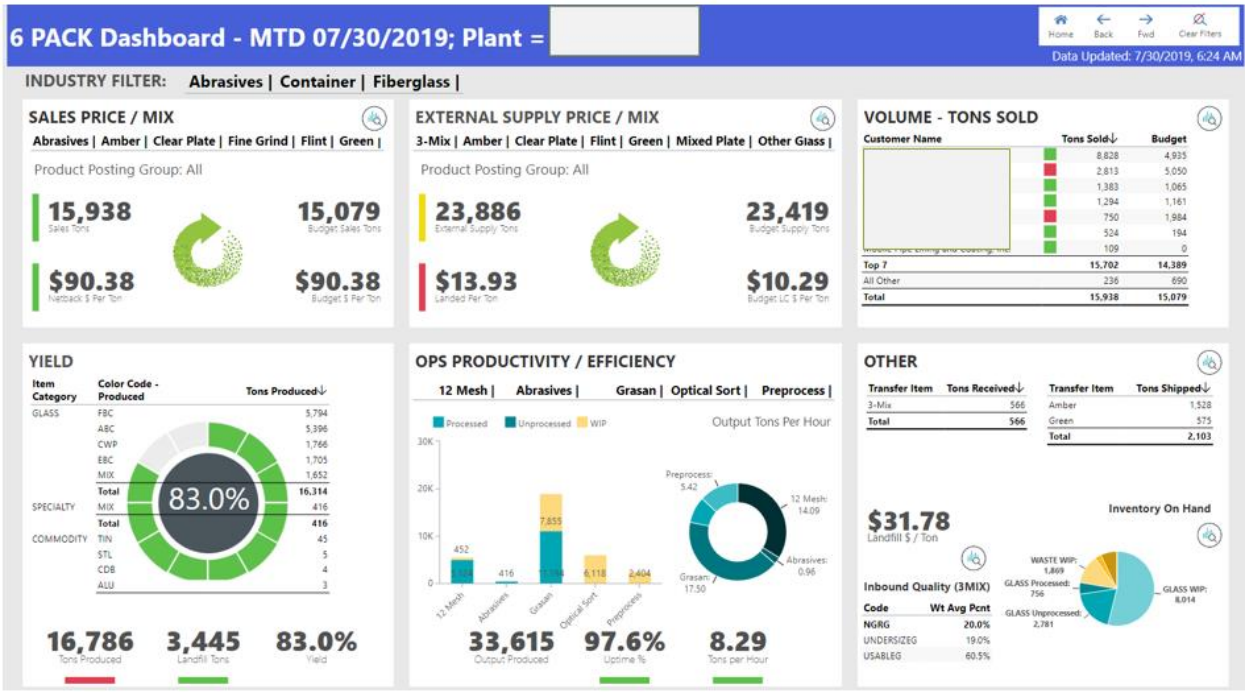
The steps involved in the entire process



Work Assignments

1. 6 Pack Dashboard



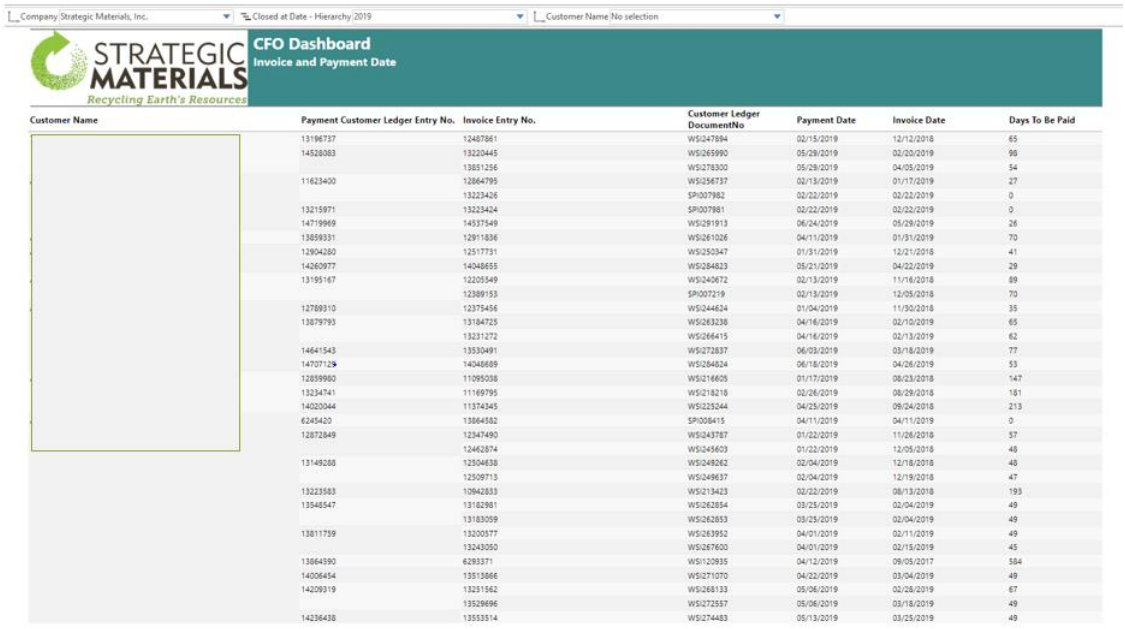


The 6 Pack is the most important dashboard used at SMI. The objective of building this interactive and dynamic dashboard is to have a quick look at all the crucial metrics in one place which could

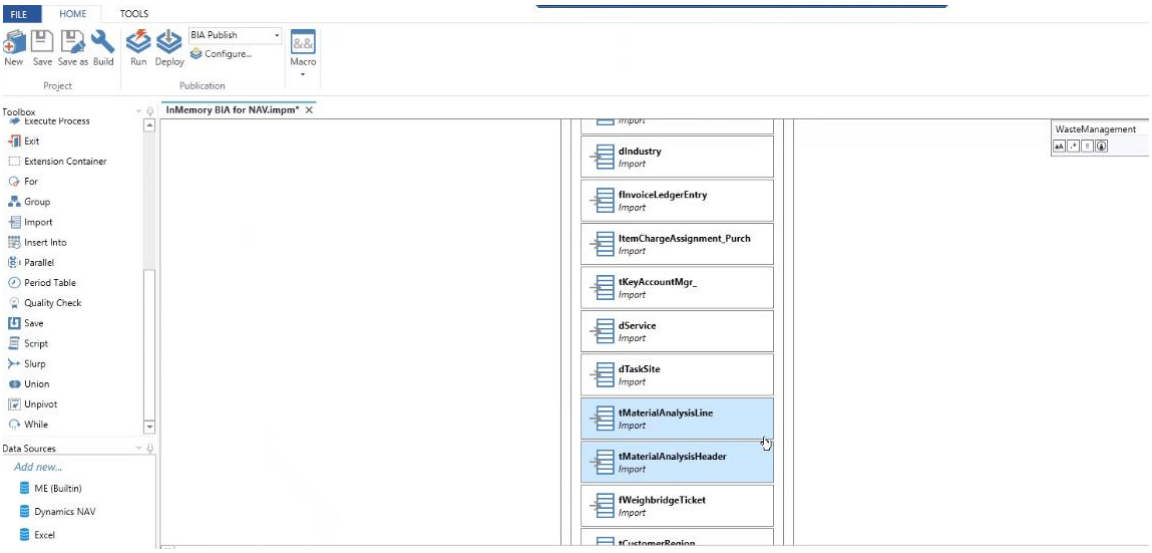
be accessible to all the employees. The department that uses this dashboard are: Operations, Finance, Commercial, Supply, and HR.

This dashboard includes the data for the Key Performance Indicators (KPIs) like Production, Sales, Yield, etc along with a comparison between actuals and budget(forecasted) values. The data used in the BI tool is stored in a data warehouse. So, before working on this dashboard, my task also included to ensure all the data was present in the cube which would help in pulling the data from the data source i.e. from MS Dynamics Nav. If the data wasn't present, ETL operations need to be performed to get access to the database via the BI tool. I had worked on creating a data warehouse in MS SSIS, and MS SSAS and hence building onto the pre-existing data warehouse became easier for me. This included the creation of cubes, data modeling, performing transformations using SQL, and loading the data. The challenging task was connecting multiple tables, requirements gathering from multiple departments in the company, change management, data integration since the entire company data was involved.

2. Executive Dashboard



I had designed the above dashboard to be viewed only by the CFO of the company. Working on this dashboard not only gave an opportunity of working on financial data. The major part of working on this dashboard involved performing the ETL operations. The steps included extraction of the relevant tables from Dynamics Nav, performing join & union operations and creating the data modeling in the preexisting model, performing transformations which included calculations and finally loading and visualization of data. While working on this dashboard, I learned that visualizing data using the BI tool is also a way of exhibiting if the integration process while performing ETL was technically correct. This is important because when implementing certain operations, it could result in the collapse of previously performed operations which would adversely affect calculations in other dashboards.



Key Takeaways

Interning at Strategic Materials, Inc gave me an opportunity of the practical application of classroom knowledge. At SMI, working with multiple departments help me understand the

meaning of the various terminologies used in the recycling industry. The courses that helped me to put my theoretical knowledge to test was data warehousing and the modeling class wherein I learn to work on a data visualization tool, Tableau. Moreover, during my internship program, I got exposed to newer technologies used in the industry and got a chance to interact with the executives at the company. Other learning points during my time spent at SMI were: how cleaning the data is extremely important. When the data in on production, it could produce glitches and be unavailable to the viewers. Also, it is extremely crucial to follow deadlines to be cognizant of the priorities of all the assigned tasks. Furthermore, the internship program helped me be a better team player and contributed towards improvement in my hard as well as my soft skills.

References

[1] https://www.strategicmaterials.com/

[2] https://www.strategicmaterials.com/UserFiles//File/Strategic_Materials_CompanyProfile.pdf

[3] https://www.strategicmaterials.com/UserFiles//File/Strategic_Materials_Products.pdf

[4] https://www.strategicmaterials.com/glass-recycling/

[5] https://www.strategicmaterials.com/plastic-recycling/