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“INDIA AT HOME” BENEFITS WITH DATA ANALYTICS

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ABSTRACT

This paper presents the use of data analytics for improving inventory turnover at India At Home. This paper provides the insight into supermarket business and challenges faced by them. It discusses in detail the problem faced by supermarkets in inventory management. This paper also suggests the solution to implement Power BI for effective inventory management. The paper is a descriptive study and data is collected from secondary sources. The challenges faced during making this paper is - Data sets from web sources of different retailers is not simple, as it demands a lot of investigation which is time consuming. Apart from this, it will also be dependent on the human interventions and thus accuracy of the results could not be confirmed.

Keywords – Data analytics, retail sector, inventory, ERP software

I. INTRODUCTION

“India At Home” is an Indian retail store in Melbourne. They specialize in Indian Savoury's and sweets and also sells products which are useful in Indian Rituals. As of Now the store is selling goods which are only used by Indians and thus prefer importing goods from India. However, many of those products are available in Australia like Spices, rice etc, also there are many products which are available in Australia and thus the need imports them from India Diminishes (Dixon, Scully and Parkinson, 2006).

The method of exploring unstructured and structured data sets with the objective to deliver updated and real time information which enable organization effective decision making is called Data analytics. Optimization of inventory can be referred as inventory of right product at right location in right quantity to meet the demand and supply of that product by a particular organization (Belbag et al. 2009). Thus, the objective of inventory optimization is to balance demand and supply. The use of Data analytics for optimization of inventory will improve accurateness in ordering inventory i.e. to have enough inventory which do not lead to shortage of product and is not over stocking (Gaur and Fisher, 2004). Data analytics will ensure right product at right location in right quantity to meet the

demand and supply. It reduces the time and energy invested by employee in manual process of inventory management (Bonney, 1994). Now, employee can focus creating value in other business processes.

II. CHALLENGE

Current mode of operation of "India At Home"

As of Now the store is selling goods which are only used by Indians and thus prefer importing goods from India. However, many of those products are available in Australia like Spices, rice etc, also there are many products which are available in Australia and thus the need imports them from India Diminishes.

Inefficiencies in "India At Home"

The Biggest Challenge for this Indian Retail store is their product catalogue which is only being used by Indian Ethnic Group and there are many products are services which remain unsold from a longer time period.

The Inventory turnover period of those products is lower as compared to other products. Now the Management Aims to Replace those products with goods available from Australia, and also reduce their quantity based on needs

III. KEY MATRIX

Key metrics that define inefficiency

Inventory Turnover

The metric used to measure the number of times inventory of India At Home is replaced or sold is Inventory turnover. Inventory Turnover will help in measuring the overall efficiency of India At Home. It can be measured on the basis that if the turnover is high, efficiency is greater. In case of India At Home, it is found that few items have lower turnover in comparison to others. It is important to observe that if the product is profitable, then a longer time on shelf should not be a problem to the company.

Data available that provide these metrics

Here the Data from ERP software being used by the company will be accessed. Inventories and their turnover for a time period will be accessed to identify the products with lower turnover.

Apart from this website of different retails brands such as Aldi and Woolworths to identify products which are available from Australian Manufacturers are also available.

IV. METHODS

Use of data to provide efficiency based on technique

For the Analysis of Data BI tool i.e. Power BI will be accessed, here the data and their statistics will be shared with the visual representation. Infographics will be used to showcase results.

Example showing the output from analysis of sample data

Power Bi tool will provide the overview of inventory, value of every product stocked as inventory, cash blocked in form of inventory, the value of inventory held by supplier and the quantity of inventory (Chaudhuri, Dayal and Narasayya, 2011). The example of a report generated by Power Bi when input is processed is given below-

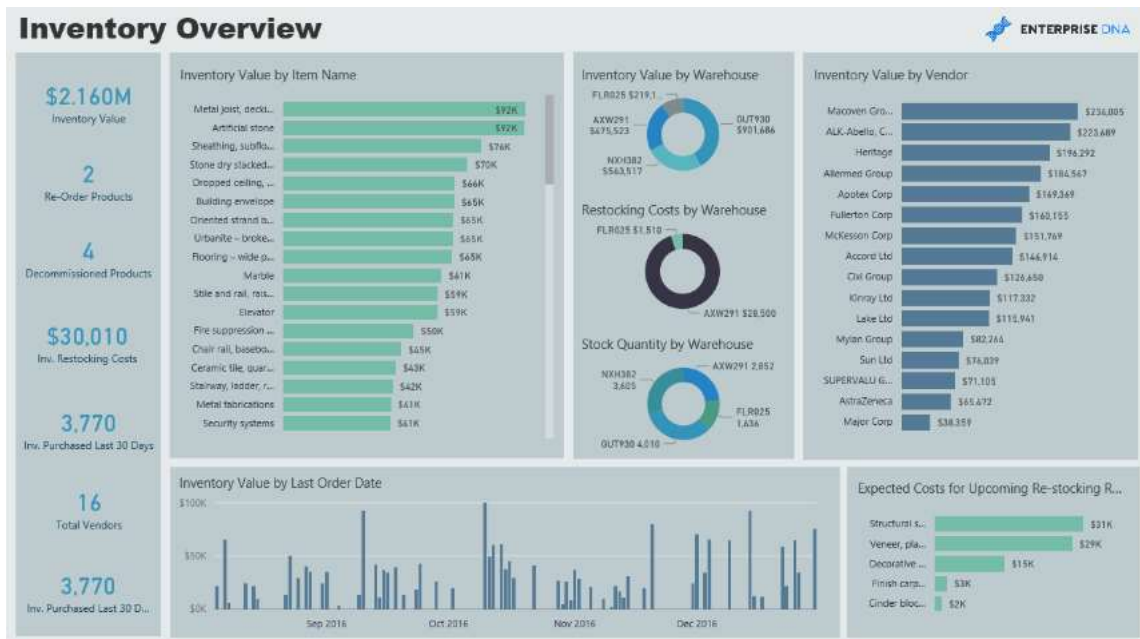


Figure 1- Report on inventory overview

Source- powerbimicrosoft.com

Project life cycle

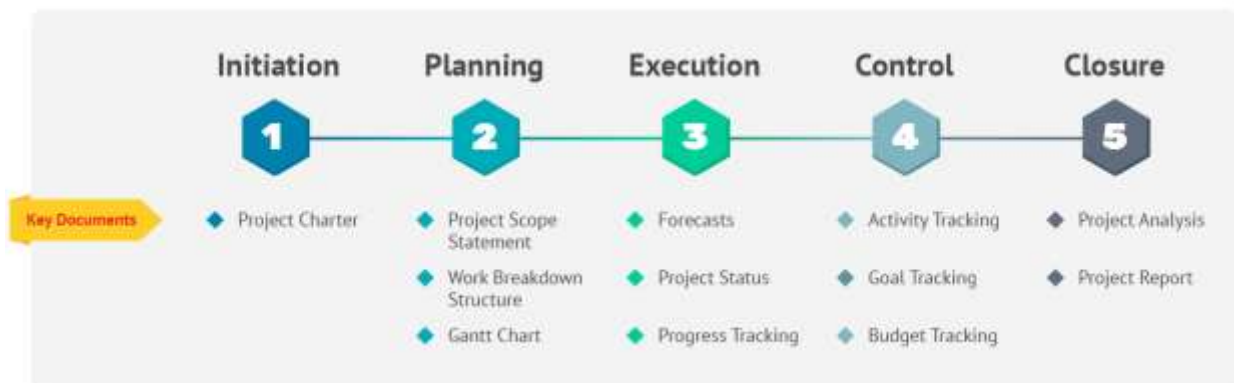


Figure 2- Stages of Project Life Cycle

Source – workamajig.com

The implementation of Power Bi at India At Home will have following steps-

- **Initiation** - a project charter will be defined which will identify the key stakeholders and objective of the project.
- **Planning** - a statement defining the scope of project will be framed, task will be breakdown into structure and project scheduling will be done using Gantt Chart.
- **Execution** - the plan will be implemented, uncertainties will be forecasted, the progress of project will be monitored.
- **Control** - the tracking of activities will be done to check the project is not deviating from objective and plan. It also keeps a track of the budget of the project.
- **Closure** - Analyzing the effective of the project and drafting a report.

Project management

The technical, market and financial feasibility of the project will be assessed. In terms of market feasibility, India At Home is facing cut throat competition, thus it increased the need for a system for better inventory management which leads to better customer shopping experience (Pritchard, 1999). In terms of financial feasibility, the cost benefit analysis will be done to estimate the cost involved in implementation of technology and benefit of saving cost by optimizing inventory management. India At Home has the ability to bear the cost of implementation of Power BI in its system. In terms of technical feasibility, Power BI is an aggregate solution for intelligence and information management. Thus, the analysis of Power BI shows that its implementation will save lot of time, energy and cost. Additionally, it will provide valuable information to the organization which will help in effective decision making.

Ethical consideration

While studying the factors influencing the choice of supermarket by customer fir shopping, it was found that apart from price, location, discounts and offer; the image of store makes a difference (Dennis et al. 2005). The image of a store is developed by a customer on the basis of his shopping experience at the store (Kunkel and Berry, 1968). There are various ways in which a customer is analyzed but among them environmental conscious customer, socially conscious customer and ethically conscious customer are grouped together (McEachern and McClean, 2002). Their attitude and behavior is also reflected in their choice of supermarket (Kinnear et al., 1974).

V. STAKEHOLDER MANAGEMENT

Key stakeholders identified

- A. Internal Stakeholders:
 - 1. Owner,
 - 2. Management,
 - 3. Staff Members of the Store,
- B. External:
 - 1. Customers,

Benefits to Internal Stakeholders

It is a challenge for owner to run an Indian store in Australia. There are various products which are required to be managed and few of them are perishable also which results into wastage of money and stock both (Nakandala, Lau and Shum, 2017). The profit margin for retailers is between 1 to 2 % only, thus, inventory management becomes crucial for India At Home. There are various ways in which Power BI can facilitate and help in solving these challenges.

Power BI can not only deliver understanding to inventory level but also towards the popularity of a product to the owner and managers. It will help in identifying the product which is most profitable. Thus, marketers can focus their energy in building strategy to increase its sales. Additionally, managers can reduce the stock of product which is not profitable creating space and money for profitable products.

Power BI will identify the rate with which promoted product leaves the shelf and stock is refilled. The objective is to reduce the number of empty shelves and customer dissatisfaction (Smith et al. 2013). This analysis can be done while customers are shopping in the supermarket and allow a real time analysis and is more accurate.

Accuracy in predicting level of inventory is more significant in case of perishable products. In spite of all efforts and inventory management, there will be a level of perishable goods which will remain unsold by the end of day and will be wasted. But, India At Home is making efforts to reduce this waste. The use of Power BI in inventory management will fulfil this objective by closely monitoring the level of inventory, reducing overstocking and empty shelves.

Benefits to external stakeholder: customers

It is easy to access, collect, manage and analyze data through software such as Power BI. It will help India At Home to determine the future shopping pattern of customer. This analysis will help India At Home to position itself according to the need of the customer. It provides insight into placing the product on shelves, putting those products together which are generally shopped together by customer, etc.

This will benefit customer in the way that customer will find the product they want to purchase easily, they will find the combination also. This will save their time and energy. It will improve their shopping experience. The shopping experience will be more interactive and enjoyable for customer which cannot be experienced in an online shopping (Freeman, 2003). The experience to walk on aisles of grocery store; check, touch and feel the product provides an experience which makes customer to visit the store.

The design of the system that could present insights to these stakeholders

Power BI is easy to use, function and is suitable for large supermarkets. It provides the benefit of storing, sharing and analyzing data resulting into reduced operational cost for supermarket. Power BI for a supermarket mainly maintains the data related to employee, products and member customer. The table below shows the information of goods stored on Power BI

Table 1. Goods information table

No	Field	Data Type	Length	Empty Y/N
1	Goods ID	Int	10	N
2	Goods name	Varchar	10	N
3	Goods type	Varchar	10	N
4	Goods number	Int	20	N
5	Price	Numeric	10,2	N

The format that could be used to provide this output

The format which can be used to provide output for supermarkets and smooth functioning of Power BI includes procurement management, refund management, sales management, inventory management, employee management and member customer management.

Procurement management includes managing the incoming inventory and keeping record of the same. Refund management keeps the record of the sales return. Inventory management maintains the record of the existing stock. The record is maintained in detail including the name, number, type, size, etc of product.

The figure below explains how Power BI manages all the functions of the supermarket.



Figure 3 – Supermarket Management System

Source- Semantic scholar.org

Organizational benefits and consequences

India At Home is facing competition in retail business in Australia. Thus, company has to make various decisions at various point of time. None of the decision can be made ignoring past data. The decisions are made on the basis of real-time data. Power BI will help India At Home to make following decisions,

- Operational decision - Power BI will improve the efficiency of performance of operation of India At Home by monitoring and controlling the inventory level. It will ensure that there is enough inventory that no shelves is vacant and there is no overstocking. It will also provide information related to which product is sold most and which product is sold least. It will help in observing the change in sale on product with change in season.
- Strategic decisions - India At Home have uneven data. The pool of information with Power BI is very beneficial for strategic decision for India At Home. Firstly, it will provide an accurate and reliable data. Secondly, this information will help in framing promotional strategies for goods.
- Customer experience decisions - Power BI will also provide information related to the need of customer, purchase pattern of customer, etc. This will help India At Home to provide a seamless shopping experience for customer by understanding the need of the customer.

VI. CHALLENGES and CONCLUSION

This paper provides the insight into supermarket business and challenges faced by them. It discusses in detail the problem faced by supermarkets in inventory management. This paper also suggests the solution to implement Power BI for effective inventory management. The challenges faced during making this paper is - Data sets from web sources of different retailers is not simple, as it demands a lot of investigation which is time consuming. Apart from this, it will also be dependent on the human interventions and thus accuracy of the results could not be confirmed.

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Annexure

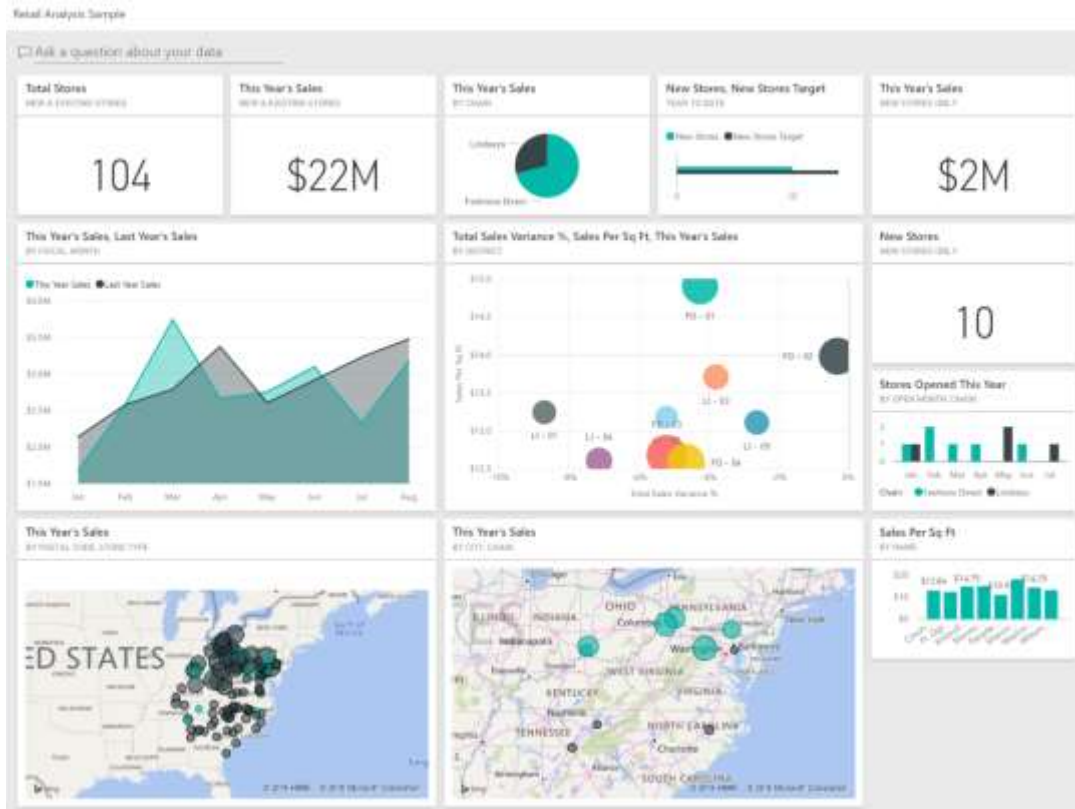


Figure 4 – Output of data analytics
 Source – docs.microsoft.com