

Sample report on data warehousing

Business, Company



Introduction

Getting an edgy and upper hand is essential for an organization as far as their core productivity and efficiency is concerned (Bagchi and Atluri, 2006).

Those organizations which are able to compete with other organizations have to cover numerous aspects accordingly, and all of the aspects would be essential for their economic and strategic growth (Banchs, 2010).

Data Warehousing has now emerged as important elements that lead to give financial and strategic effectiveness to an organization. Organizations which are striding in this ambit are using the Data Warehousing Techniques for their future effectiveness, and among those organizations which are strategizing to implement Data Warehousing Techniques, there is a name of Amazon, as well (Becker, 2002).

Amazon Inc is an American company that comes under the electronic commerce section that has its main hub in Washington, the United States (US) (Becker, 2001). Amazon is known as the largest internet based company in the overall United States. Though, this company started as an Online Bookstore, however the company became diversified from selling books to DVDs, CDs, Videos and MP3. Apart from these products, Amazon also has their recognition in the consumer electronics, Apparel, Foods and others. Apart from these general products, Amazon Inc is also having its hands in the Cloud Computing Services.

The best thing associated with the company is its remarkable and perfect organizational structure in terms of services, as the company is operating with different websites in United States, Ireland, United Kingdom (UK), France, Germany and Canada. Apart from these western countries, the

company also has its recognition in most of the Asian countries with providence of international shipping to them. Currently, Amazon Inc is strategizing to enter in the Poland and Sweden market, as well by launching its website in those regions.

Amazon Inc is a financially stable and strong company, with its shares trading in two different exchanges of the world, known as Standard & Poor (S&P 500) and NASDAQ. Currently, more than 132, 000 employees are associated with Amazon which are assisting them to report high revenue, as they reported in the financial year 2013 which was US\$ 74. 45 billion along with the net income of US\$ 274 million. The graph below is showing the escalating revenue of the company

Analysis & Findings

There are four different questions which are required to accomplish in this particular section, mainly concerning to data warehousing (Becker, 2001).

Outlining the Data

Amazon is known as the largest organization in terms of having online operations and solutions for their customers, and they are doing the same for their effectiveness and core power (Becker, 2003). Apart from books, the company is now covering hundreds of products including CDs, DVDs and others (Grant, 2003). The essence of geographical application and implementation is very important for Amazon, and that is the main reason why the management of the company always tries to maintain a great tradeoff in their core operations (Becker and Fargo, 1991).

There are more than 100 places in which the shipment of Amazon has been made. Apart from that Amazon don't charge any shipping cost from the

customers. The company maintained and managed different websites for each of their geographical location to maintain the level of effectiveness in their services and products consequently. As per the view of this analysis, data warehousing is needed by Amazon Inc to further strengthen their operations accordingly. There are certain data and information that must be required by the management of the company to place the warehouse accordingly, and in a perfect manner.

A Data Warehouse provides the whole information of a company, summarized it, mold it and then presents it in a perfect manner for the management to take vital decisions for the sake of the company (Han, Kamber and Pei, 2012). Amazon is not a manufacturing company; it is basically working as a Middleman in which they works like a bridge between buyers and sellers, therefore the data and information should be transformed in the same manner accordingly.

Amazon has a complex structure in terms of bringing products in their custody and then shares it with the customers. In this connection, the information required in the Data Warehousing would be complex too. The company requires the data and information regarding the products that orders by the consumers and what is the total cost associated with each of the order (Han, Kamber and Pei, 2012). Aligning the data according to the preference of the consumers can be an important thing to transform the collected data consequently. The new data warehouse of Amazon should have the complete data set of the sales generated through different regions of the company, along with having the information related to the products of the company. This will include the information related to the Supply Chain

Management (SCM) and Logistics functions as well. All of this information should be summarized and present in a systematic way in the data warehousing of Amazon from which the upper management can take timely measures. Historical data that comes directly from different departments of Amazon can be a vital game to make trends and take decision on the basis of the same (Han, Kamber and Pei, 2012). Amazon should be very clear about the differentiation in the data needed and data extraction, and there should be a perfect tradeoff in it. There is no need to include irrelevant data to the data warehouse, like Property Plant and Equipment (PPE), shipping cost and operational cost, because upper management has nothing to deal with it. Upper management only deals with the highlighted and broad issues like sales, direct cost of sales and sales according to the geographical location. There is yet another important data and information that can be used by the upper management to take timely decision which is of Marketing Function. The marketing function should be used accordingly in the market, and should transform it for the betterment of the company in the near future. For the data warehousing, upper management also needs to know the frequency of selling of a single product, and why people are buying it. For example, Apple I-Phone is one of the largest selling brands in the entire world, and Amazon received thousands of requests daily for this brand. Therefore, such information should be there in the data warehouse, just to get an idea regarding the effective products for the company. Apart from that, sales according to geographical locations and its information will also bring positive and effective changes in the entire operational function of the

company, and will work like wonders for them in terms of taking timely decisions.

Data Warehousing and Implementation

Data Warehousing is a subject of 'Computing' (Han, Kamber and Pei, 2012).

A Data Warehouse basically known as an Enterprise data warehouse is a complete system used by the organizations for the reporting and data analysis purpose. Upper management of an organization usually sticks with the decision making and management authority of the company, and for these people such data of warehousing can be extremely effective and essential (Han, Kamber and Pei, 2011). Data Warehouses (DW) are located in center to report all the integrated data in a perfect manner. It usually stores the current and historical data view for creating trending based reports for the senior management to compare the annual or quarter results. Precisely, it can be said that Data warehousing is a technique to accumulate all the relevant and important business data of the company and then present it accordingly in the function. It is not only used for the data quality services, but also used for the recommendation purpose in particular (Han et al., 2012)

Likewise other organizations, the importance of Data Warehousing is equally effective and important for Amazon. It can be used in the conjunction of data and information accumulation for Amazon, as well. Data warehousing can be extremely essential for Amazon to track and monitor their performance after a certain time period. The management, after collecting, summarizing and trending the data has the chance to take effective decisions for the future consequences of the company (Kozielski, 2009). The Data warehousing

techniques can be very effective and essential for the sake of the company particularly. The implementation of such data warehouse will certainly enhance the productivity and level of efficacy in an organized manner (Kozielski, 2009). It is required having a picture of the information and data that could be used for the decision making purpose for Amazon, and the same is as follows

The aforementioned picture is clearly manifesting that there are six different types of information that deem significant and important for the entire managerial functions of Amazon as far as taking timely and effective decisions is concerned (Mento and Rapple, 2003). Data Warehousing, if included Sales and Marketing Information, then it will certainly help out the company and the management to compare their performance and trends accordingly. It is an important thing in the current view of management, in terms of bringing the Total Quality Management (TQM) (Miller and Han, 2001). The inventory associated with the company in their inventory department can be very essential and effective for the entire decision making authority. Amazon Management will use all of these aspects in an effective manner, and will help the company to accomplish their growth. All of these aspects have been already mentioned and analyzed in the aforementioned answers, and the company is all set to implement the change accordingly. Amazon's management should empower this thing in their future, and they have the chance to get the things in the right manner accordingly. It will also help the company to manage its cost in a perfect and organized direction (Min Tjoa and Trujillo, 2006). There are certain issues that specifically associated with the implementation of Data warehousing in

the Amazon, and all of these issues and problems will be discussing in the next section of the report.

Issues in the Process Involved

Gaining long term financial and non financial effectiveness is an important point of decision making for the organizations, and no organization can sustain in an industry without having highlighting issues and problems. There are certain challenges and problems that specifically attained with an organization during their corporate move, and those organizations which have the guts to prove their effectiveness should have used the power with intensity (Min Tjoa and Trujillo, 2006). Upper management always plays an important role in the effectiveness of an organization, because they have a direct linkage with the financial and strategic performance of the company accordingly. Likewise issues found in the management of the company, there are certain issues found in the data warehousing process as well. As discussed earlier, data warehousing will bring lots of effectiveness and fair consideration for the companies as they are bringing for Amazon; however, there are some issues that need to be highlighted accordingly (Mundy, Thornthwaite and Kimball, 2006).

One of the major issues that found by Amazon is the availability of complete customer's data (Mundy, Thornthwaite and Kimball, 2006). There are millions of customers who buy the products from Amazon every month, covering different IPs and countries. Therefore, it is not possible for the company to track each and every customer and then place it in the data warehouse, from which powerful action regarding the customer's and their fluctuation can be attained (Mundy, Thornthwaite and Kimball, 2008).

The second big issue found in the process of data warehousing pertains to the marketing activities and functions. Without any doubt, marketing department is the most crucial department for the sake of an entity, and it is equally beneficial for Amazon as well. In terms of having an online presence, Amazon doesn't need to market their products with the traditional marketing techniques (Nagabhushana, 2005). Social media networking (SMN) and Search Engine Optimization (SEO) are some of the major marketing techniques that can be used effectively by the company for their presence (Nagabhushana, 2006).

Apart from that, there is a big problem that specifically associated with the online companies, which is the validity of the data and the security of data (Nagabhushana and Sathyanarayana, 2010). Theft and Hacking is a common part of the online business, and Amazon will be having this particular problem while establishing the Data Warehouse accordingly at the place. The future sales acceleration can be a big problem for Amazon because of high competition, hence proper technique should be used to anticipate the future growth of the company.

Advance Business Analytics Techniques

This is the era of globalization and technological efficiencies and in this connection, the utilization of advance business analytics is very common and important for the entities, and it is equally beneficial for Amazon as well (Nagabhushana and Sathyanarayana, 2010). Some of the major types of business analytics techniques are optimization, data mining and regression analysis, which are used by the management to reach on a final conclusion, accordingly (Parashar, 2012). Optimization is a mathematical program that

used by the companies to maximize their benefits and minimize their cost function. It is one of the best techniques employed by the companies to input the right data at the right time, and covers a large general area accordingly (Pujari, 2001). It is about finding the best available values for the company that will enhance their productivity (Rao, 2004).

There are three different problems highlighted in the aforementioned section which predominantly covers the area of data tracking, marketing and management of the security of the data. Optimization and Data mining techniques can be used to overcome all of such problems. Data mining technique can be used to overcome the tracking of each and every data that enable the company to manage the data of the customers from all over the world in a database. Apart from that, data mining tool has the capability to prevent the valuable data of the customers from any sort of security problem. On the other hand, optimization technique can be an essential one to analyze the importance of marketing for the company. The optimization technique will enable the company to apply the marketing technique at the right time for their better growth and execution, and it will certainly be a great bargaining point in the establishment of Data Warehouse.

The third issue relates to anticipation of sales through the regression modeling. Let's say Amazon anticipated that they have to attain a sales volume to let say \$ 1 billion, and they want to have their Net Profit Margin (NPM) to a level of 15%. Then the company has to come up with some strategies and valuation tools from which they can execute their position accordingly. Apart from the optimization tool, there is yet another tool used for the same thing, known as Data Mining (Sekar and Pujari, 2008). Data

Mining is an important strategy that is used specifically to collect the relevant data and then move the things accordingly. It is one of the most important strategies that can be used by Amazon in particular. While managing their data warehouse, the company can mine the most traditional and effective data, and then use it in appropriate manner for the best possible action for the company (Singhal, 2007).

Correlation Analysis

Regression tool is the most important tool that can be used by the companies for their core productivity. This is the tool that can be used for the forecasting techniques as well. It is also used for assumptions and managing the hypothesis. The regression tool will analyze the core relationship among the sales and direct cost of the company

In this section, forecasted sales will be computed by utilizing the regression modeling, time series and moving averages

Data Analysis and Modeling

Data Analytics and Modeling is an important measure that could be used by the companies to enhance the value of their Logic Driven Values. With the help of this model, the economic value of a customer can be analyzed

Value = Value of a Customer

R = Revenue per Purchase

F = Purchase Frequency

M = Gross Profit Margin

D = Defection Rate

There are some assumptions that will be taken into account for this analysis

Revenue of the company in the year 2013 is = \$ 74, 452 Million

No of Customers = 102 Million

Revenue per Purchase = $74,452 / 102 = \$ 729.92$

Purchase Frequency = $F = 5$ times a day

Gross Profit Margin in the year 2013 = $M = 27.22$

Defection Rate = 15%

$= 729.92 * 5 * 0.272 / 0.15$

The value of a customer of Amazon is \$ 6, 617, which is highly effective and would be worthwhile for the company.**Conclusion**

Technological advancement and efficiency have a great significance for the organizations, and organizations are advised to maintain a perfect tradeoff in the technological efficiencies particularly. Entities are made to work effectively and efficiently to achieve the prospective goals. There are two ways in which the effectiveness can be high, known as Short Term and Long term particularly.

The entire field of business covered with analytical tools and techniques, however only those organization would get it in the right direction who have the guts to manage these techniques accordingly. The core theme of this paper relates to the establishment of data warehouse for Amazon, from which they can take vital and important decisions. The implementation of effective tools and techniques reveals that the financial and strategic position of the company will certainly enhance with this establishment, and

will bring positivity in the action of the company soon. The company can also improve the entire operational structure of the company with this warehousing.

References

- Bagchi, A. and Atluri, V. (2006). Information systems security. Berlin: Springer.
- Banchs, R. (2010). Information retrieval technology. McGraw Hill.
- Becker, S. (2001). Developing quality complex database systems. Hershey, Pa.: Idea Group Pub.
- Becker, S. (2002). Data warehousing and web engineering. Hershey, PA: IRM Press.
- Becker, S. (2003). Effective databases for text & document management. Hershey PA: IRM Press.
- Becker, S. and Fargo, T. (1991). Buddy's shadow. Exton, Pa.: Jason & Nordic Publishers.
- Das, V. (2013). Proceedings of the third International Conference on Trends in Information, Telecommunication and Computing. New York, NY: Springer.
- Furtado, P. (2010). Evolving application domains of data warehousing and mining. Hershey, PA: Information Science Reference.
- Grant, G. (2003). ERP & data warehousing in organizations. Hershey, PA: IRM Press.
- Han, J., Kamber, M. and Pei, J. (2011). Data mining: Concepts and techniques. San Francisco: Morgan Kaufmann Publishers In.
- Han, J., Kamber, M. and Pei, J. (2012). Data mining. Amsterdam: Elsevier/Morgan Kaufmann.

Han, J., Kamber, M. and Pei, J. (2012). Data mining. Waltham, Mass.: Morgan Kaufmann Publishers.

Han, J., Kan, B., Pei, J., Fan, M. and Meng, X. (2012). Shu ju wa jue. Beijing: Ji xie gong ye chu ban she.

Kozielski, S. (2009). New Trends in Data Warehousing and Data Analysis. New York: Springer.

Mento, B. and Rapple, B. (2003). Data mining and data warehousing. Washington, D. C.: Association of Research Libraries, Office of Leadership and Management Services.

Miller, H. and Han, J. (2001). Geographic data mining and knowledge discovery. London: Taylor & Francis.

Min Tjoa, A. and Trujillo, J. (2006). Data Warehousing and Knowledge Discovery (vol. # 4081). Berlin Heidelberg: Springer-Verlag.

Min Tjoa, A. and Trujillo, J. (2006). Data Warehousing and Knowledge Discovery (vol. [4081). Berlin Heidelberg: Springer-Verlag.

Mundy, J., Thornthwaite, W. and Kimball, R. (2006). The Microsoft data warehouse toolkit. Indianapolis, IN: Wiley Pub.

Mundy, J., Thornthwaite, W. and Kimball, R. (2008). The Microsoft Data Warehouse Toolkit. Hoboken: John Wiley & Sons, Inc.

Nagabhushana, S. (2005). Computer vision and image processing. New Dehli: New Age International.

Nagabhushana, S. (2006). Data warehousing. New Delhi: New Age International.

Nagabhushana, S. and Sathyanarayana, N. (2010). Lasers and Optical Instrumentation. New Delhi: I K International Publishing House.

- Parashar, M. (2012). Contemporary computing. Berlin: Springer.
- Pujari, A. (2001). Data mining techniques. Hyderabad: Universities Press.
- Rao, S. (2004). Transport management. Delhi, India: Nidhi Book Centre.
- Sekar, R. and Pujari, A. (2008). Information systems security. Berlin: Springer.
- Singhal, A. (1985). The design and analysis of concurrency control algorithms in different network environments.
- Singhal, A. (1993). Minimizing time for tool change for CNC turning machines.
- Singhal, A. (2007). Data warehousing and data mining techniques for cyber security. New York, N. Y.: Springer.
- Singhal, A. and Ou, X. (2011). Security risk analysis of enterprise networks using probabilistic attack graphs. Gaithersburg, MD: U. S. Dept. of Commerce, National Institute of Standards and Technology.
- Singhal, A., Gunestas, M. and Wijesekera, D. (2010). Forensics web services (FWS). Gaithersburg, MD: U. S. Dept. of Commerce, National Institute of Standards and Technology.
- Tjoa, A. and Trujillo, J. (2006). Data warehousing and knowledge discovery. Berlin: Springer.
- Wang, J. (2006). Encyclopedia of data warehousing and mining. Hershey, PA: Idea Group Reference.
- Wrembel, R. and Koncilia, C. (2007). Data warehouses and OLAP. Hershey: IRM Press.