HR Dataset of employees: An Implementation of Business Analytics

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Abstract—the skills, technologies, and practices for constant iterative investigation and analysis of past business performance is called Business analytics (BA). It results to gain insight and drive business planning for any organisation. BA focuses on emerging new comprehensions and considerate of business performance based on data, information and concept of statistics. In contrast, Business Intelligence (BI) focuses on consistent set of metrics to both measure past or history performance and use the details for business planning, which is also based on data and statistical methods. BI encompasses a variety of tools, methodologies and applications that can enable organizations to collect data from internal and external sources. This data is prepared for analysis and queries are developed against the data. The reports are created. Also dashboards and data visualizations are make for analytical results to corporate decision makers as well as operational workers. In this paper, it discusses the usage of one of the BI tool i.e. Dashboard. It also discusses the BI application in HR department using HR database. The employees are the main human resource of any organization. The main objective is to find out the role of dashboard in analysis of HR related data.

Research Methodology: An experimental research is conducted using secondary data collected via a website. The dataset is taken from a source for learning purpose.

Findings: The main findings of this paper are the analytics is used for data and interpretation of dashboard can be used by the company for planning in future.

Keywords— Business Intelligence; Business analytics; business performance; HR Data

1. Introduction

Analytics have been used in business for commercial purposes. Frederick Winslow Taylor placed different management exercises in the late 19th century. Also, Henry Ford measured the time taken by the activity of each component in his newly conventional assembly line. The new era of analytics began to command more attention in the late 1960s. This time automated computer programs were used in decision analysis of systems. Since then, analytics have changed and formed with the data increase of any systems i.e. enterprise resource planning (ERP), data warehouses, and other software tools and processes used by any organisation.

Business analytics (BA) refers the skills, technologies, and practices for constant iterative investigation and analysis of past business. It results to gain awareness and initiative in business planning for any organisation. Business analytics makes extensive use of statistical analysis. This includes explanatory and predictive modelling. Also, the fact-based management activities are used to drive decision making. The field or the study of analytics is closely related to management science. Analytics takes the input from different processes and used the analysis for human decisions or may drive fully computerized decisions. Banks, such as Capital One, use data analysis (or analytics), to differentiate among customers based on credit risk, usage and other characteristics. This details then match with the customer characteristics and used for appropriate product offerings by sales and marketing department.

2. Challenges faced by Business Analytics

Business analytics depends on high volume of data. This data should be a quality data. The difficulty in ensuring data quality is the integration and incorporation of data across different systems and sub systems. The analytics decides upon the data and subsets of data available. Earlier, analytics was considered as after-the-fact method type. This method is used for forecasting consumer behavior by examining the number of units sold in particular quarter or particular year. The data assemble in data warehousing required a lot more storage space. These days business analytics has become a tool that influences the outcome of customer interactions. The customer centred type is considering a purchase, an analytics-enabled business can adapt the sales arena to appeal to that consumer. This means the storage space required for data required a real-time transaction.

Key Challenge 1: No of employees in each province required in an organisation. The analytics reports are viewed by top executives and decision are taken based on the research and future planning.

Key Challenge 2: The details of the employees according to their skillset. The employees are assigned with the required task based on their ability and availability, this is an effective approach for analytics.

3. Business Intelligence

Business intelligence (BI) is the set of techniques and tools, used to transform the raw data into meaningful and useful information, which is used for business analysis. Data surfacing is a function associated with Business Intelligence. BI technologies are skilful for conducting huge amounts of data to help identify and develop models, which is used to create innovative strategic business opportunities. The goal of BI is to allow for the easy interpretation of these huge volumes of data. The new opportunities are identified and implemented in an effective strategy based on insights can provide competitive market advantage and long-term stability in business.

BI technologies provide historical, present and prognostic views of business operations. Common functions of business intelligence technologies are reporting, virtual methodical processing, data mining, process mining, analytics, complex event processing, business performance management, benchmarking, mining (text and data), predictive analytics and prescriptive analytics.BI can be used to support a wide range of business results oscillating from strategic (top) to operational (lower). Basic operating decisions include product positioning or pricing. Strategic business results include significances, goals and directions at the broadest level to all the employees of the organisation. In all cases, BI is most effective when it associates with data derived from the market in which a company operates (external data) with data from company sources internal business functions such as operations and financial data (internal data).

Some specific applications of Business Analytics, allows novel opportunities for businesses to optimize and adapt their business model, are: a) Critical product analysis, b) Improved customer service, c) Up-selling opportunities, d) Simplified inventory management and e) Competitive price insights.. Critical product analysis allows minor alterations to be made of a product, location with aiding the study in trends associated. Improved customer service keeps track of frequent customer queries which prevent businesses from repeating mistakes and improving customer satisfaction. The prominent needs of a business's customer base are for Up-selling opportunities. Simplified inventory management, Employee/ Personnel management is also supported by Business Analytics as gathered data can help predict which products are on the verge of becoming outdated, minimizing losses. Competitive price insights can help businesses make their prices competitive by tracking the employee's details time to time with their trends and salary ranges which suite the projects.

4. Dashboard Implementation

The study of decision support systems in the 1970s provides an idea of digital dashboards. With the surge of the web in the late 1990s, dashboards are required in a way it was appearing now. Many systems were developed in-house by business organisation to display the consolidated data. This data is already being gathered in various information systems through the businesses in organization. Now a day, digital dashboards are available "out-of-the-box" from many software providers. Most of companies continue to do in-house development of dashboard applications. In management information systems, a dashboard is a tool which is easy to read, in a single window, real-time user interface, showing a graphical presentation of the current status (snapshot). The historical trends of an organization's are key indicators used to enable prompt and cognizant decisions to be made at a squint.

Dashboard is also known as "progress report" or "useful report. Often, the "dashboard" is prepared and is linked to a real time data which allows the report to be constantly updated i.e. a HR dashboard may show numbers of employees department wise, or employees with their salary and personal details displayed. Also, human resources dashboard may show numbers related to staff employment, retaining and work alignment, i.e. number of open positions, or average days or cost per recruitment.

Digital dashboards may be laid out to track the flows inherent in the business processes that they display. The users want to see the high-level processes and then drill down into low level data. This level of detail is required within the corporate enterprise and otherwise unavailable to the senior executives. The different types of digital dashboard are available as follows: a) standalone software applications b) web-browser based applications, and c) desktop applications also known as desktop widgets. The last are driven by a widget engine.

Every dashboard tracks the corporate functions and try to accommodate on the single window. Examples include human resources, recruiting, sales, operations, security management and many more departmental dashboards. For a smaller organization like a start-up a compact start-up scorecard dashboard tracks important activities across lot of domains ranging from social media to sales.

Digital dashboard projects involve business units as the driver and the IT/ARE department as the enabler. The success of digital dashboard projects often depends on the metrics that were used for monitoring. The key performance indicators, sales performance and balanced scorecards are some of the content ways used for dashboards.

Digital dashboards allow managers to monitor the contribution of the different departments in organisation. To gauge exactly how well an organization is performing overall, digital dashboards allow capturing the data and reporting specific data points from each department within the organization, thus providing a "snapshot" of performance.

5. Objectives

- No of total companies in each province with the number of employees in specific city
- Identify the of employees with their names in each company. With total no od employees in province

Fig.1: Dataset

The data set contains details of employees like: Full Name, Company in which he is working, Address, etc.

Fig. 2: List of companies, city, province and names

It contains index function, which helps in easy referrals. By applying index-function value of output changes as we change the value of input.

Fig. 3: Index Function

VLOOKUP function is used to extract the relevant information of a particular employee. With the help of vlookup there is no need to search the details from main dataset.
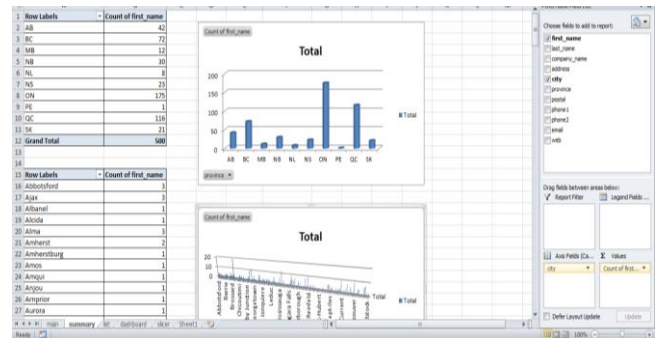

Fig. 4: Pivot Table

Pivot table is used to summarize the dataset as per requirement and HR manager take the decision based on the data available and also promote the employee for future prospects.
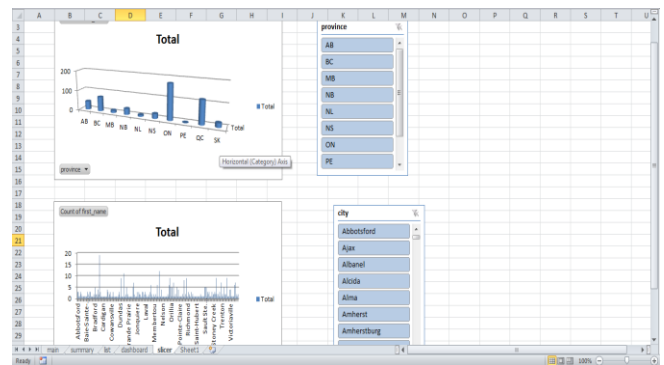

Fig. 5: Slicer

Slicer will display the slicing of data with respect to category available i.e. province and city

6. Conclusion

Excel Dashboards is used to create executive reports. These reports are powerful and easy to design. This is the best way to use the data visualization skills. The flexibility of data can virtually design any dashboard in Excel according to the requirement of user. The data analysis can be easily done and implement data mining and warehousing. The dashboard prototype is made according to user requirements. This is the cheapest tool of business intelligence. Limitation of this project was that data set was limited.

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