

Analysis, Interpretation And Presentation Of Data

INTRODUCTION - Analysis, Interpretation And Presentation Of Data

1. Introduction

The concept of *data management and analysis* has become an integral part of business operation with the advent of technological growth and operational automatization over the past decades. Analysis of business data allows the companies to optimize their market performance and reduces operational costs as it provides in-depth insights into consumers' preferences and market statistics. The present report emphasizes the importance of statistical management and analysis of raw business data in the way of business planning. In this aspect, a special reference is given to *Avega Group Plc*, a renowned *IT company* that offers *commercial-support services* in the form of *IT solutions* and *business development consulting services* in the market of UK. The report further focuses on developing a discussion related to various statistical methods and their application in business planning. Different charts and tables are also going to be depicted here to communicate given variables for the purpose of making the report discussion more comprehensive.

2. Evaluation of nature and process related to business and economic data

The process of business involves various forms of data along with specific sequences that are related to the structured task, people, products and others. Based on the environment of business, the nature of data and its types are categorized by the data analyst for the purpose of making effective business decisions. As opined by Wang (2021), the making of rational decisions helps the business firms in terms of grabbing the market opportunities and meeting consumers' demands that ultimately flourish the business revenue. In addition, the use of various statistical tools makes the data managers way more capable of gaining accurate information from economic and business data that help to ensure the management of capital, profits and present quantifiable outcomes.

Figure 1: Nature and process of business data

(Source: ScienceDirect, 2018)

Economic and business data allows the company to enhance their decision-making process from the economic findings that help to archive the net income and revenue profits in business. Statistics is applied to almost every dimension of business activity from creating to growing profitability related to consumers, and the economy of sales. It has been seen that “*Avega Group Plc*” leverages various technologies such as big data and others in the context of understanding the nature of consumers' data that help the firm in the gaining of economic benefits in their business operation (Aveva, 2021). Furthermore, interpretation of economic as well as business data aims to bridge the gap between actual economy and current financial health. In this aspect, various methods such as *exploratory, descriptive, and confirmatory* and others are used by the data manager in business settings.

3. Critical evaluation of methods of analysis of data used to present business

Various methods are nowadays implied in the business settings to analyze the gathered data related to logistics, consumers, tasks and others that allow the management to understand the business more. Analysis of data allows the business firms in terms of informed decision making; to target consumers better and reduce costs related to operation thereby sustainability in the business operation can be retained effectively. *Quantitative and qualitative* are the two widely accepted methods that are used by most organisations to interpret the collected data. Additionally, from the evidence of empirical studies, it can be stated that the use of the method of data analysis is also developed with the changing pattern of business data in the present business (Hameed and Al-Zwainy, 2022). *Quantitative analysis* is focused on addressing various questions related to the aspect by using questionnaires, attitude scaling and other tactics to gain an accurate interpretation.

Besides, the *qualitative analysis* also focused on measuring in terms of observed and recorded variables that are non-numerical. Both of the tactics are useful in terms of structuring, gathering, interpreting and shaping the collected data to satisfy the decisions or strategies in business. “*Avega Group Plc*” includes the strategy of reducing financial losses and steering decisions in their operational way with the support of data analysis in the form of *big data analytics*. Besides, marketers also used *cluster analysis* for the purpose of grouping the data elements that allow the company to offer the best-personalized services to consumers (Kiradoo, 2020). On the other hand, the incorporation of various methods of analysis also helps the data manager to compare the historical or traditional data for broader

firms' understanding. By using this method the present businesses can blend their consumer base and their momentary gaining.

4. Analyze and evaluate the quantitative and qualitative business data by using a range of examples and statistical methods

Quantitative and qualitative data possess different outcomes and implications of statistics that help to collect more accurate information for strengthening business decisions. The manager of “Avega Group Plc” mainly collects the data about the productivity of their employees for the purpose of maximizing their business productivity. In the aspect of numerical data, the application of variables is suitable to summarize the results in an effective way (Noprisson, 2020). Use of various statistical methods such as inferential statistics, and indexes such as median and mode help to draw the conclusions from the raw business data. The wrong selection of statistical methods may result in inappropriate assumptions that result in a financial burden on the business.

Figure 2: Leverage of analytics by “Avega Group Plc”

(Source: Aveva, 2021)

For example, in the context of analyzing the raw data related to employers' performance, the data manager can use descriptive statistics to describe the outcomes. In this method, frequency needs to be collected at first for both qualitative as well as quantitative data in proportions, ratios or percentages. All of the descriptive statistics are calculated by the data manager by using quantitative data as they are always numeric (Cerqueira *et al.* 2020). Besides, a logical order is required to calculate the data from lowest to highest and express is a count. *Mode* can be calculated as it is basically the value of frequency observed while *median* requires inter-quartile ranges with a logical value from low end to high end. In the context of calculating standard deviation, the mean needs to be calculated which the sum of values in the data is set. By using such step-by-step appropriate statistical methods both raw qualitative as well as quantitative data are analyzed by the manager to summarize the information related to the specific areas.

5. Evaluation of the difference of application among descriptive statistics, inferential statistics and measuring association

In the path of analyzing the raw business data the use of the appropriate statistical method such as measuring association, descriptive statistics and others help the data manager to come up with an accurate scenario regarding the aspect. *Descriptive statistics* is the commonly used one that provides absolute numbers to satisfy the research questions. In various ways, it can be applied such as *mode, range, percentage, mean, and median* to generalize the specific set of observations (Debnath and Mourshed, 2018). For example, *the percentage* is a good way to reflect the gender distribution of respondents.

Figure 3: Example of descriptive statistics of Avega Group Plc

(Source: Finance. yahoo, 2021)

The above picture indicates the statistics of the income statement of the selected organisation, in which descriptive analysis is used to describe the statistical measure of the described categories. Besides, inferential statistics is applied for making inferences from the larger population for the purpose of drawing conclusions. *Quantitative data* is analyzed with the help of such methods to consider how the population progresses in the future (Pohl *et al.* 2022). The data manager can use this statistical method for differencing population and sample in the group analysis. In simple notes, this approach allows showcasing the relationships among multiple variables in order to generalize results and develop assumptions. For example, it can be stated that income projection for the company can be inferred from the rate of change over the years. Various sampling techniques such as systematic, stratified, random sampling and others are used under this method.

Apart from that, *measuring association* is another effective tool that is used by data managers to find causation and make predictions related to any specific aspect. The method is mostly adopted for developing relationships among multiple variables that help to determine the inferences related to a data set (Miles *et al.* 2018). It is an advanced statistical tool that is used in high mathematical levels calculations such as regression analysis, coefficient calculation and others. The application of such statistical tools helps the data analytics of “Avega Group Plc” to utilize consumers' data in a systematic way that helps to improve the business revenue. Furthermore, the company can enable personalizing the consumer's experiences and streamline operations with the help of informed decisions based on the

analysis of data. The use of data analytics also helps the selected firm to minimize the business risks that broaden the retention of operational sustainability.

6. Critical evaluation of differences in application among descriptive, exploratory, and confirmatory analyses of economic and business data

There is a huge difference between the application of the descriptive analysis, and exploratory as well as confirmatory analysis within the economic data of the chosen business organization. As per the view of Werthel *et al.* (2019), descriptive analysis is the method that helps in the analysis of the collected data by the AVEVA organization. Moreover, it can be stated that the descriptive analysis access in the description as well as summarizes as well as shows all the points of the data collected for the AVEVA software organization. Additionally, it can be stated that the summarization of all the points of the data are done in a very constructive way in respect to analyzing the data more appropriately.

As a contrary, it is stated that there are various advantages of the analysis of the descriptive which include it helps to provide a higher degree of the neutrality as well as objectivity for the data researchers as for the data analysts. Moreover, it is to be claimed that the analysis of the descriptive is pondered to be additionally vast than the different methods of the qualitative. As a contrary, it is claimed that the business organization of AVEVA has achieved huge excellence in saving millions in the early warning catches by 100s. Moreover, it is to be claimed that due to the procedure of the various analyses for the concerned organization helps in the reduction in maintenance costs of AVEVA. As argued by Ma *et al.* (2019), the exploratory data analysis deals with the critical procedure for the performance of the initial investigation for the collection of the data in order to analyze the data in a proper way. Moreover, it is claimed that the exploratory analysis of the data access in the improvement for the acknowledgment of the different variables by extricating the averages of the values related to the minimum, mean as well as a maximum of the AVEVA organization.

As a contrary it is stated that the data analysis of the exploratory data access to discover the outlines, missing values as well as errors in the collected data for the respect of getting an idea of where the organization of AVEVA is lacking. Additionally, it is claimed that by discovering all the data about the missing values it helps in the collection of the more authentic as well as statistical data for the benefit of the AVEVA. Moreover, by keeping a note of this it accesses in the improvement in the workforce efficiency of the employees of AVEVA by 25%. On the other hand, Gibbs *et al.* (2018), states that the confirmatory data analysis is an

important section for the evaluation of the data by using various types of tools like inference, confidence as well as significance. Moreover, confirmatory data analysis helps to improve the power of the statistics by measuring the modeling of error as well as it also provides a theory-based approach with a “robust statistical” basis. Additionally, due to all the analysis of the data collection, it resulted in a reduction in “unplanned downtime” by 25%.

7. Application of a range of statistical methods in business planning for inventory, quality and capacity management

Statistical analysis plays a pivotal role in major operational activities such as inventory, quality and capacity management as it allows the gathering of real-time data to accelerate the activity. The area of *inventory management* involves the prevention of overselling of products that required the accurate calculation of the order flow. By incorporating effective statistical tools, the business organisations can foster better forecasting regarding their services and products as well as keep an eye on the market competition (Vassakis *et al.* 2018). *Hypothesis testing* is an effective method that is used by the data manager to substantiate the new product launches or increase sales on a larger scale. Under this method, alternative and null both types of hypotheses are used to represent the assumption and nullify the data for the purpose of extracting an accurate result. The presence of accuracy in the information ensures the efficacy of the judgment that endorses future growth.

It can be stated that the conduction of a hypothesis test helps the business firms to analyze the market data that in turn makes the inventory suitable for business profit. By ensuring the proper inventory in the business operation, the company can be way more capable of offering quality services to their target consumers. On the other hand, in the aspect of *capacity management*, the use of the *linear regression analysis* can be beneficial for the data manager of companies as it allows the evaluation of the relationship among variables that identify the solution or a line for best fit. The formula of this statistical method indicates the representation of the expected value related to the sum of the dependent as well as the independent variable (Yasmin *et al.* 2020). For example, business organisations can use historical data relating to logistic activity, technological incorporation and various inventory spent for comparing the generated revenue over the time periods. The tactic helps the data analyst to find the best line for forecasting their future logistic activity that helps to ensure effective capacity management.

Figure 4: Ranges of the statistical methods used in business planning

(Source: Created by the learner)

On the other hand, *multiple regressions* are also used for making robust planning in the business operation in the area of capacity, quality and other management. In this statistical method, both independent and dependent variables are considered to come out with a good interpretation of gathered information. Instead of entering one value, it allows input values to multiply for independent variables which are helpful to predict the scenario outcomes (Ciampi *et al.* 2021). It can be stated that in a relationship of revenue and advertising spend, the use of such a method helps to analyze different types instead of total expenditures that bring accuracy in calculation or extracting the outcomes.

Depending on the statistical knowledge as well as business nature, the analytics of data is used by the businesses to leverage the business decisions in a greater way. Moreover, the presence of an analytical standard is essential for business success as well as for accelerating business planning. Proper planning in business helps to optimize the logistic activities in the form of inventory or capacity management which in turn makes the operation cost and time effective.

8. Evaluation and justification of the use of appropriate statistical methods supported by specific organization examples

Statistical analysis is beneficial for the various aspect of business as it contributes to the foundation of the suitable decision in business that derives the business revenue. It has been seen that statistical analysis helps the manager of “Avega Group Plc” in order to analyze the existing performance as well as predict the future practices that lead towards being more responsive in the market (Aveva, 2021). Statistics help to describe the market, ensure informed decisions, and allow the changes as per the consumer's demand.

The data manager of the selected company supports descriptive analytics in various areas of their business including inventory, financial and others. The approach allows the analyst to explain the cause of the reason by using historical data. As per the organisational strategy, it can be stated that the use of data analytics helps the company to improve its future probabilities by analyzing the effect and cause related to marketing, sales, operations and other spectra. In addition, the analysis of past failures and successes with the support of such a statistical method helps the company to strengthen its business strategy.

In the stakeholder analysis, the use of statistical methods helps the company to understand their need thereafter fostering the creation of more values for them. It has been seen that “*Avega Group Plc*” by creating an accurate picture of their operation through the help of analytical tool enable enhancing more consumers and investor interest respectively. Besides, it is the manager's responsibility to incorporate the statistical approach in the area of need and also maintain an action plan in real time. Constant update in information is another potential strategy that helps the company to incline their profit ratio within a short period of time.

In the aspect of handling the large volume of data in the business operation, the selected company also used the concept of *big data analytics*. The concept is all about the finding of trends, patterns and relationships to discover the traditional data. Various stages are included in this process such as data ingestion, data processing, cleansing and analysis. The concerned organisation uses predictive analytics in the context of targeted marketing that helps to enhance consumers' satisfaction with their business. The *ANOVA concept* is used under this analytics for the purpose of analyzing the group distribution by comparing variance and mean (Hameed and Al-Zwainy, 2022). In the aspect of probability measurements, the use of position or binomial distribution has been supported by the data analyst to infer the exact outcomes. Moreover, the use of good statistics fosters the building of rational decisions within the business of the selected firm that maximizes the market growth and revenue for the company's business.

9. Recommendations and judgments for improving business planning

In this present era of business intelligence, the enforcement of statistical analysis allows business firms in terms of offering quality services and meets the consumer's needs effectively. In the aspect of fostering more accuracy in the forecasting process, the data manager of the selected organisation needs to give more focus on conducting a hypothesis test. The use of such a statistical method may help the company in terms of enhancing the efficacy of their decisions with the help of drawn conclusions (Wang, 2021). Besides, the use of descriptive analysis may also help the organisation in terms of comparing the relevant phenomenon that is fruitful for setting the price as well as picking up described data in a visual manner. On the other hand, the manager of “*Avega Group Plc*” can also give stress the incorporation of mechanistic analysis so that a better understanding of the market demand

can be result. Insights related to the variable changes help to lead the planning efficacy that ultimately ensures the business growth.

Furthermore, the use of various statistical tools can help the manager of the selected firm to ensure better business planning that contributes to their future growth in the operating market. *RStudio*, *SPSS statics* and other tools can help the management team to get benefit from the graphical interface related to the huge data in various areas. In addition, the presence of necessary analytical skills is also crucial for the company thereby the management team need to give more focus on the provision of the necessary training for the employees. As opined by Noprisson (2020), the provision of training not only helps the company with enhanced productivity but also broadens the area of responsibility among the employees.

Apart from that, it is also recommended for the selected organization to give focus on taking into consideration the appropriate ways of communicating the results related to the variables and analysis. That may help the company to gain transformative opportunities in their business as well. Moreover, it can be stated that by being mindful of the analytics the company can enable of improving its planning accuracy that in turn help the company to meet their strategic objectives respectively.

10. Conclusion

On the whole, from the above discussion, it can be concluded that the use of various statistical method allow the company to make sound decisions in their business that help to enhance the market revenue respectively. It can be also stated that the integration of various analytic tools helps the management body of "*Avega Group Plc*" in the aspect of fostering more accuracy in the path of forecasting as well as being responsive towards the consumer's needs in the business operation. Furthermore, the use of both types of data such as quantitative as well as qualitative help the company to get insights into the market trends and boost the strategic efficacy of their business. Lastly, the proper implication of methods helps the management concern to streamline their operational activity for the context of serving the competitive edge.

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