Unit 4 IP

[Name of the Writer]

[Name of the Institution]

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**Introduction**

Managing a business is not an easy task, it requires a great level of skill and insight in order to tackle the various challenges in the way of the setup. A businessperson should be able to foresee the difficulties coming in the business's way and analyze the challenges so that they can be tackled in a proper way. In order to run all these functions, which ultimately pile up to form the various problem handling techniques for a business, a businessperson performs a number of procedures and analysis. These procedures and analysis include both qualitative and quantitative techniques which range from broad marketing techniques to narrow down statistical analysis. One of the most popular statistical analysis or techniques that are used by business persons is multivariate analysis.

 Multivariate analysis refers to the kind of calculations and analysis that include the investigation of data with a number of dependent variables. All the variables in this kind of analysis are independent variables and represent the relations of each variable with each other. Multivariate analysis is also known as descriptive analysis techniques and can be differentiated based on the number of variables included in the study. A simple example of this can be taken in the form of sales in relation to the territorial regions or sales in relation to income. A number of variables can be incorporated like sales, income and family size. The following discussion will highlight the example of an organization that has incorporated the use of various multivariate techniques at different levels. Moreover, these details will also highlight that how Big D incorporated will be benefitted by the use of various statistical techniques especially the multivariate analysis tools.

**Discussion**

There are different types of multivariate analysis techniques that are used when it comes to the organizational level. Different organizations use different kinds of analysis techniques and tools that best suit their needs and demands. Especially in the case of product-selling organizations, it becomes extremely important to carefully choose the statistical analysis tool so that accurate results can be predicted and the company can get maximum benefit out of it. In most of the cases, three types of analysis tools are used: Factor Analysis, Multidimensional Scaling, and Cluster Analysis.

**Real Example Of A Company That Has Incorporated Multivariate Techniques In Its Operations**

As already discussed that different companies use different styles or techniques for statistical analysis. One of the real-life examples of usage of statistical analysis is Sam’s Club. Sam’s club uses the techniques of Multi-dimensional analysis in order to analyze how participants categorize logos (Cox, & Cox, 2000). Another real-life example can be seen in the form of statistical analysis used by Blue Cross Blue Shield of Iowa. Blue Cross Blue Shield of Iowa incorporated the use of cluster analysis in order to develop new products and improve the already existing products (Hennig, Meila, Murtagh, & Rocci, 2015). Another renowned organization, Grey Apple, has been using factor analysis to analyze the interrelationships between various variables being used in different areas of production and marketing (Kline, 2014).

**How Can Each Multivariate Be Used In Big D Incorporated And What Purpose Would Each Technique Serve?**

**Factor Analysis**

Factor analysis is a technique that is used to analyze the relationship and interrelationship between different variables. The main purpose of this kind of analysis is to break down larger sets of data or variables into smaller factors (Bandalos, & Finney, 2018). Big D incorporate will get an advantage of using this technique that underlying data will be distributed as multivariate normal and the as a result, the developed relationships will be linear.

**Multi-Dimensional Scaling**

Multidimensional Scaling (MDS) is a technique that is used for visualizing the level of similarities in the individual sets of a dataset. Big D Incorporated can take benefit from this technique in the way that it can be used to retrieve information about pairwise distances among the sets of a group and individuals.

**Cluster Analysis**

Cluster analysis tends to divide data into groups and clusters, and doesn’t involving using similarities and dissimilarities (Anderberg, 2014). Big D incorporated can use this technique to develop a grid or configuration regarding the data where they may be configured.

**Preferred Method**

Although all the tools or techniques for the statistical analysis can be used in the case of Big D Incorporated and all the techniques will prove to be beneficial for analyzing and interpreting different results at different stages or different departments, the best and most beneficial technique that would provide the most appropriate results is the Multidimensional Scaling.

 **How is the preferred method different from all the other statistical techniques?**

Multidimensional Scaling is the most appropriate method that is considered for application in almost all the departments of Big D incorporated. There are many reasons behind its recommendation but the most appropriate one is that it cab used accurately to recommend similarities and differences in the different data sets (Borg, Groenen, & Mair, 2018).

**Conclusion**

 In short, it can be seen that various types of analysis work for different companies and organizations, which they use to develop new products or bring improvements in their already existing products and services in the market. Big D Incorporated can also use a single statistical method or a combination of different statistical methods and analysis techniques in order to promote its products and increase its sales and profits. The best recommended method or analysis, in my personal opinion, is the Multidimensional Scaling, with the help of which, the products can be ranked in various rankings and categorized according to the popularity.

**References**

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