Pareto analysis

Science, Statistics

INTRODUCTION

In this chapter, we will discuss on Pareto Analysis topic which is a statistical techniques in decision making. We will focus on:

- The definition of Pareto Analysis.
- The history of Pareto Analysis.
- When we can use Pareto Analysis.
- How to use Pareto Analysis.
- The risks of using Pareto Analysis.
- Ways to avoid the risks arises.
- The advantages and disadvantages of Pareto Analysis.

WHAT IS PARETO ANALYSIS?

The definition of Pareto Analysis can be identified as statistical techniques in decision making. The difference between other decision making techniques is this analysis are applying the 80/20 rule. Which is by doing 20% of works, will gain 80% advantage of the entire works. Meaning here is by only focusing on significant issue or problems, we can gain a 80% returns as we focus on the entire works.

This Pareto Analysis is a creative way of looking at causes of problems to help stimulate thinking and organize thought.

HISTORY OF PARETO ANALYSIS WHEN TO USE PARETO ANALYSIS

During problem analysis, to find those sub-problems that will return the greatest benefits. * Used in any general situation where you want to

prioritise action. For example, use it when selecting potential solutions, by comparing their cost-benefit ratios. * Use it in a team situation to show results of voting.

HOW TO USE PARETO ANALYSIS STEPS

Identify Items to compare . Identify the items to be analysed and charted. These should be a single complete group that can be measured in the same way.. For example ‘ Damaged seats. Choose measurement units. Find a measurement unit this that will lead to the highest bar being the most important to address. * This is often a count of something. A weighting factor may be used to ensure the highest number is the most important. Plan the measurement Determine how many items must be measured to build a representative chart. Plan the detail of the work, including who will measure what, how, for how long, and so on. If possible aim for around 50 items, as this will give a statistically repeatable chart. If you repeat the measurement, keep all conditions as similar as possible. Carry out the measurement as planned. A Check Sheet can be used to manually record measurements. Plot the results in vertical bars, sorted with the highest bar on the left. If there are a lot of items that would lead to a long tail of small bars, you can combine these into an ‘ others’. Select the focusChoose the number of bars which you will address further (this is usually one or two). If there are a lot of items that would lead to a long tail of small bars, you can combine these into an ‘ others’. Take the work to the next stage by acting on your findings. If the bar selected is big, you can find a further focus by breaking this down into a sub-Pareto chart.

EXAMPLE:

The city hospital has to analyse and solve the various complaints of the patients, which are submitted to the Head Nurse Office. In order to analyse the complaints and claims we use the Pareto Diagram. With consideration 845 received complaints, starting from the complaint forms filled in by the medical service beneficiaries, which were grouped in the following categories.

- COMPLAINTS BY CATEGORY:
- REARRANGE THE PROBLEMS ACCORDING TO THE MOST SIGNIFICANT TO THE LEAST SIGNIFICANT ACCORDING TO THE NUMBER OF COMPLAINTS RECEIVED.
- PLOT THE GRAPH, CREATE THE CHART AND DRAW THE CUMULATIVE CURVE RISK OF PARETO ANALYSIS & HOW TO AVOID IT RISKS| STEPS TO AVOID

Selecting the wrong items, such as jumping to conclusions rather than using proven facts. Take care to start with the right problem. Using measures which lead to the highest bar on the chart indicating something that is not the most appropriate item to address. Remember that the focus is to find the most important item, so get measurements right. Assuming the people who are doing the measurement are motivated and able to do this. Educate the people who are doing the measurements and check with their managers that they can do this extra work. Ending up with things that are too-big to address. Carefully consider the effort you will need to address the selected items.

If this will be too much, then take another step to find a lower-level focus. Last-minute changes that are based on intuition rather than measurements and known facts. Be very careful when taking intuitive leaps. It is often better to trust a process which can later be verified.

ADVANTAGES & DISADVANTAGES OF PARETO ANALYSIS

ADVANTAGES:

- Organizational Efficiency -The problems ranked highest in severity should become the main focus for problem resolution of improvement.
- Enhanced problem-solving skills -Enables management to organize work-related problems into connected facts. . Improved decision making -Can measure and compare the impact of changes that take place in an organization.

DISADVANTAGES:

- Easy to make but hard to troubleshoot -Provide no insight on the root causes
- Multiple Pareto chart may be needed -Further analysis and more charts are needed
- Qualitative Vs Quantitative data -Can only show qualitative data that can be observed.

CONCLUSION

Here, we can conclude that Pareto Analysis are helping in decision making by identifying the significant issues or problems to be solved and get the high advantage by doing entire jobs.

The 80/20 rule states that by focusing on 20% of the entire problems, we may generate 80% of the advantage of the entire job. Therefore, we can saves time and improved decision making skills by solving the right or significant problems rather than focus on the symptoms only. However, Pareto Analysis also have some drawbacks when they’re failed to determine the root causes and it needs further analysis since the Parato Analysis only gives the significant problems according to the information gained from unskilled person on the certain issue such as from customers, clients, suppliers and other parties.