

Histogram

DESCRIPTION																															
<p>A histogram is a type of bar graph that displays the frequency distribution of the data. The group of data are separated out into specified ranges which allows the user to detect distribution patterns (bins) with the height of each bar representing the frequency of the data points in that bin and help reveal variation among the data set. The most frequent pattern of distributions include:</p> <ul style="list-style-type: none"> ➤ Bell-shaped- represents “normal” distribution ➤ Skewed- represents positive “right” or negative “left” distribution ➤ Bimodal- represent two distinct processes 																															
STRENGTHS	WEAKNESSES																														
<ul style="list-style-type: none"> • Useful for identifying and communicating variation in a process and for making decisions on the focus of improvement efforts. • Allows patterns of variation that are difficult to see in a check sheet. • It is an easy tool to use with a large amount of data and can easily be create using Excel. 	<ul style="list-style-type: none"> • Using a small sample data set can result in making conclusions that do not represent the entire process. • Too many bins can make analysis difficult, while too few may exclude important data. • Doesn't provide the median, upper or lower quartile. • Difficult to compare two different data sets. 																														
APPLICATIONS																															
<ol style="list-style-type: none"> 1. Identify process improvement opportunities. 2. Determine pattern of variation to identify the cause of a problem based on frequency of each cause. 3. To determine if an existing process or a new process is meeting design specifications. 4. Measure if a process improvement or change in a process is effective. 																															
HELPFUL HINTS																															
<p>To Construct:</p> <ol style="list-style-type: none"> 1. Collect a minimum of 50 data points for the process, otherwise a pattern in variation may be missed. 2. In Excel, create a table with two columns. One column is for the data set and the second column is for the bins (intervals). <ol style="list-style-type: none"> a) Click on Data → Data Analysis. b) Select Histogram. c) Select the Input Range and Bin Range then checkmark Chart Output. d) Right click on a bar and select Format Data Series. 3. Change the Gap Width to 0%. The interval between the bins must be continuous and consistent without gaps (e.g., 1 -5, 6-10, 11-15) <p>Helpful Hint: Normalize* your data. Normalization*: The organization of data to appear similar among different datasets and taking into consideration the number of opportunities.</p>																															
EXAMPLES																															
<div style="text-align: center;"> <h3>% DONOR REACTIONS vs DONOR AGE - JAN TO DEC 2020</h3> <table border="1"> <thead> <tr> <th>Donor Age</th> <th>Percentage</th> </tr> </thead> <tbody> <tr><td>18</td><td>6.35%</td></tr> <tr><td>22</td><td>3.68%</td></tr> <tr><td>26</td><td>3.63%</td></tr> <tr><td>30</td><td>2.09%</td></tr> <tr><td>34</td><td>1.77%</td></tr> <tr><td>38</td><td>1.35%</td></tr> <tr><td>42</td><td>1.01%</td></tr> <tr><td>46</td><td>0.91%</td></tr> <tr><td>50</td><td>1.19%</td></tr> <tr><td>54</td><td>1.33%</td></tr> <tr><td>58</td><td>1.06%</td></tr> <tr><td>62</td><td>0.67%</td></tr> <tr><td>66</td><td>1.58%</td></tr> <tr><td>70</td><td>0.94%</td></tr> </tbody> </table> </div>		Donor Age	Percentage	18	6.35%	22	3.68%	26	3.63%	30	2.09%	34	1.77%	38	1.35%	42	1.01%	46	0.91%	50	1.19%	54	1.33%	58	1.06%	62	0.67%	66	1.58%	70	0.94%
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