Introduction to Discrete Control Charts

Data Science for Quality Management: Control Charts for Discrete Data

with **Wendy Martin**

Learning objectives:

Differentiate between continuous and discrete data

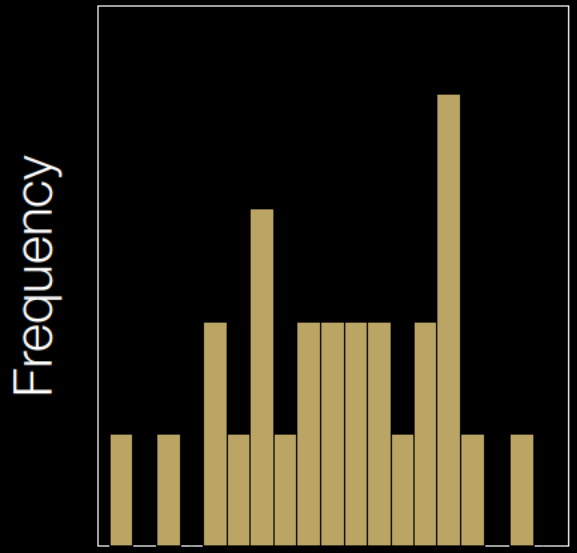
Select an attribute control chart based on sample size and the underlying distribution

Recall: Step 3 — Select the Chart Type

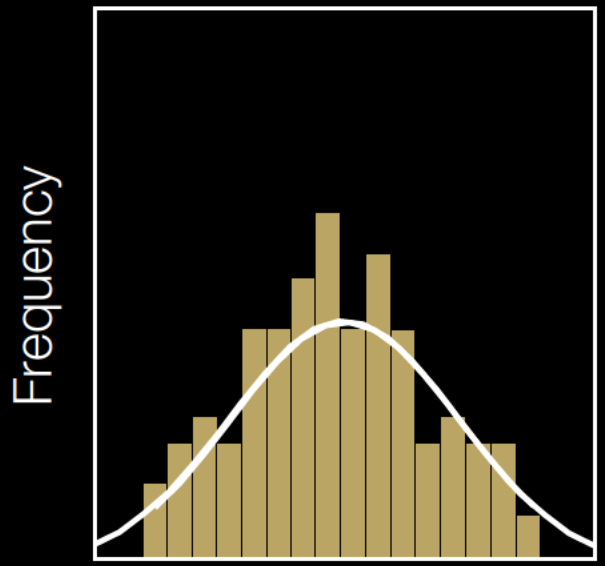
- Chart Selection will be based on
  - Whether using Attributes or Variables data
  - Sample size

Attributes vs Variables Data

Attribute Data - Discrete
Things we count



Variables Data - Continuous
Things we measure



Control Charts for Attributes

- Attributes charts are used to monitor processes measured with (typically) Nominal - Dichotomous and Absolute - Count data

Control Charts for Attributes

- Attributes charts may be used for data reflecting:
  - Binomial Proportions
  - Poisson Rates

Control Charts for Attributes

- Counts may be the number of items, occurrences, or events

- The number, or count, may be plotted or this may be converted to a proportion or rate

Control Charts for Attributes

- Different charts are available depending on whether you encounter equal or unequal sample sizes

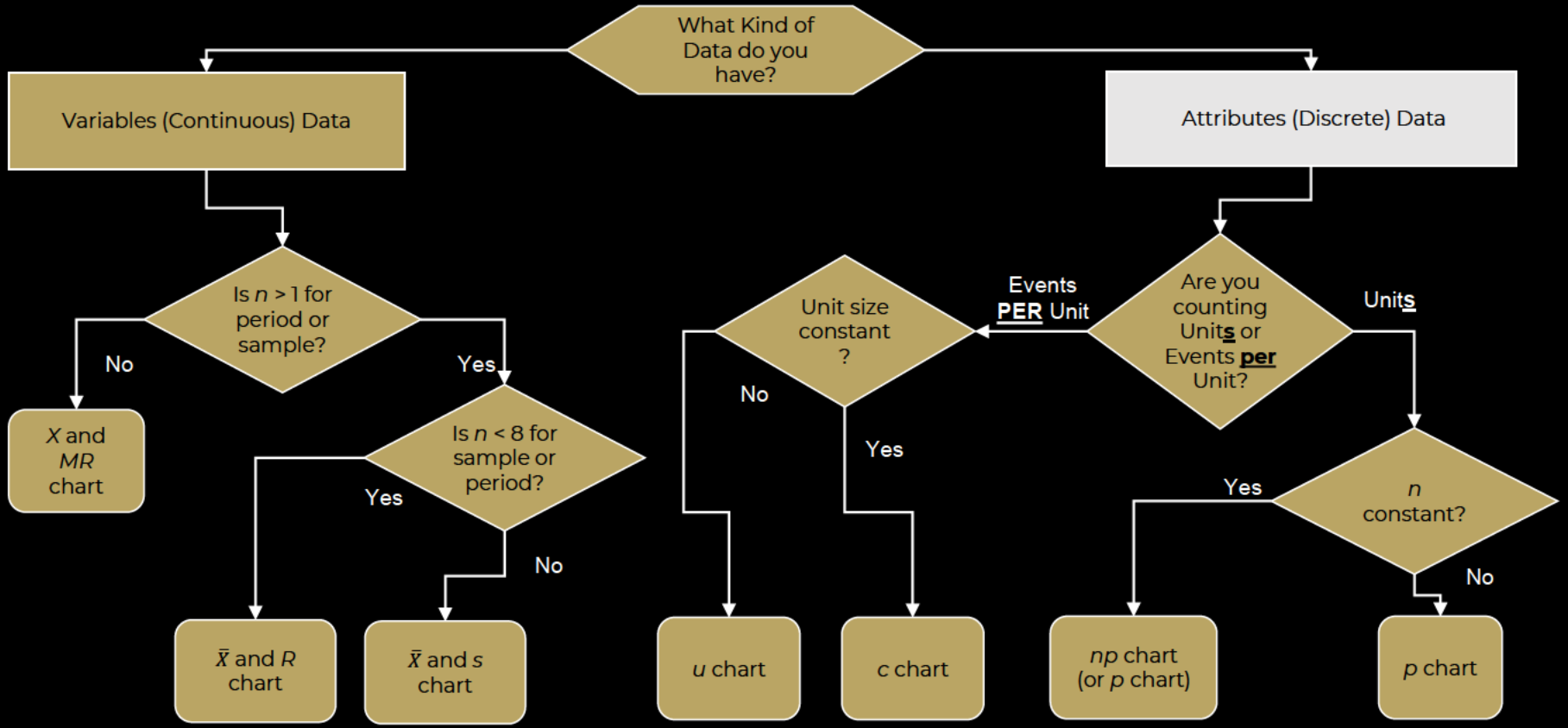
Attributes Control Chart Types

p chart (binomial)	np chart (binomial)	c chart (Poisson)	u chart (Poisson)
Percent or proportion of unit**s**	Number of unit**s**	Number of events **per** unit or interval	Average number of events **per** unit or interval

Choosing an Attributes Control Chart

Counting	Equal n	Unequal n
# units	np or p chart	p chart
# per unit	c chart	u chart

Step 3: Select the Chart



Sources

The material used in the PowerPoint presentations associated with this course was drawn from a number of sources. Specifically, much of the content included was adopted or adapted from the following previously-published material:

- Luftig, J. An Introduction to Statistical Process Control & Capability. Luftig & Associates, Inc. Farmington Hills, MI, 1982
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