

IASSC CERTIFIED GREEN BELT ICGB EXAM STUDY FLASH CARDS

142+ key terminology flash cards!



BEYOND
SMART CITIES

[LEARN.BEYONDSMARTCITIES.IN](https://learn.beyondsmartcities.in)

What is a spaghetti diagram in Six Sigma?

© Beyond Smart Cities Private Limited . Not for Resale

A spaghetti diagram is a visual representation of the movement of people, materials, or information in a process. It is used to identify areas where there is unnecessary movement and wasted time, which can then be eliminated to improve the efficiency of the process. The diagram is created by tracing the actual movements of people, materials, or information through the process and plotting them on a graph.

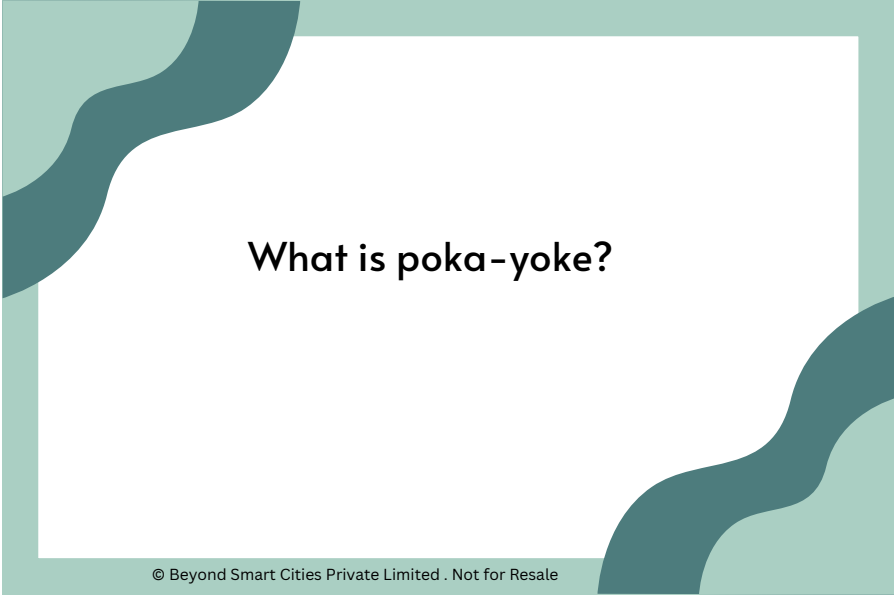
© Beyond Smart Cities Private Limited . Not for Resale

What is muri?

© Beyond Smart Cities Private Limited . Not for Resale

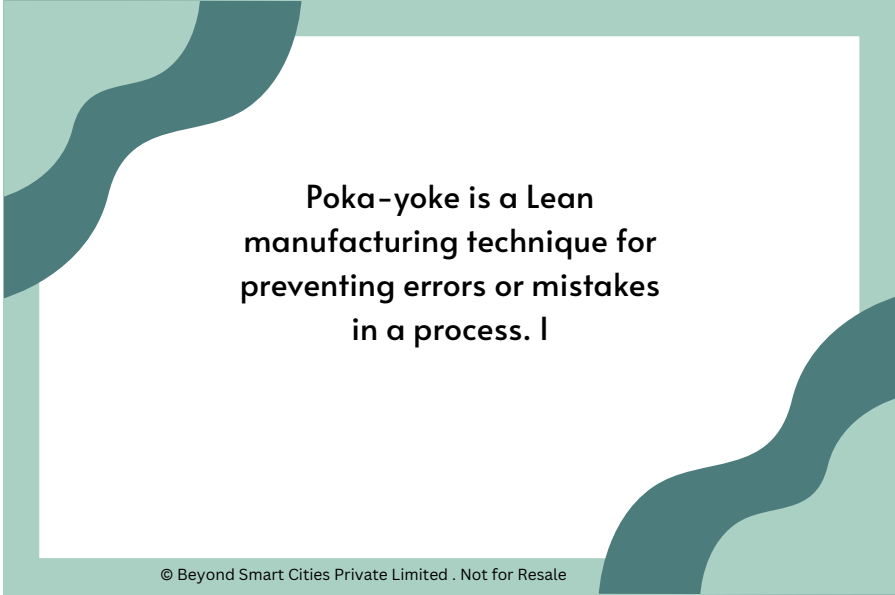
Lean manufacturing defines muri as overburdening a process or system. Overproduction, overprocessing, over-inventory, over-motion, and over-time are examples. Muri is often caused by unrealistic goals, poor equipment, or a lack of system capacity knowledge. Muri must be identified and addressed for an efficient, sustainable, and balanced production system.

© Beyond Smart Cities Private Limited . Not for Resale



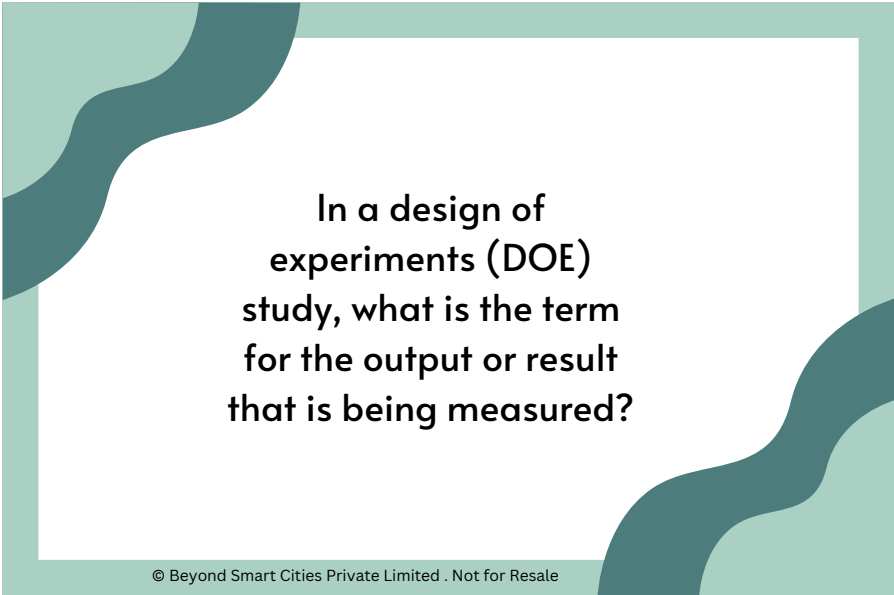
What is poka-yoke?

© Beyond Smart Cities Private Limited . Not for Resale



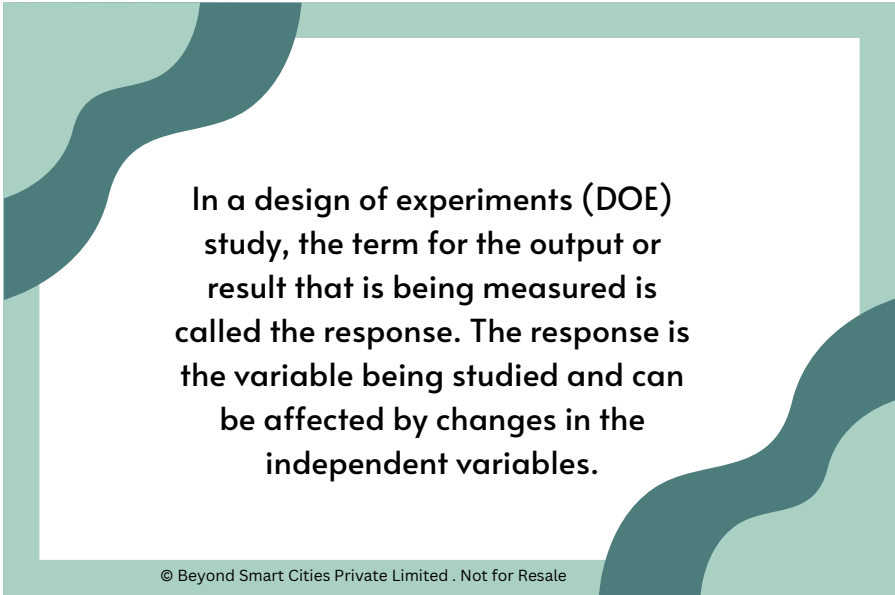
Poka-yoke is a Lean manufacturing technique for preventing errors or mistakes in a process. I

© Beyond Smart Cities Private Limited . Not for Resale



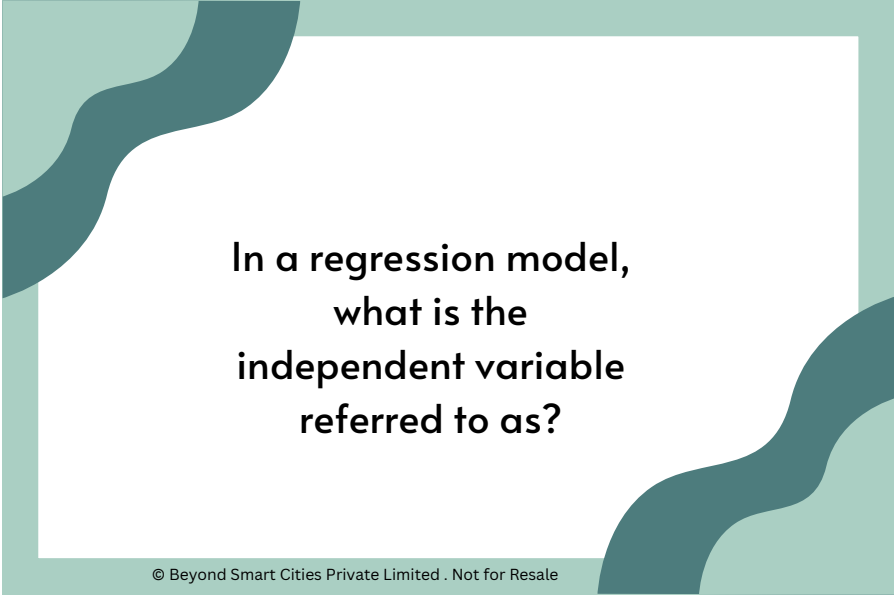
In a design of experiments (DOE) study, what is the term for the output or result that is being measured?

© Beyond Smart Cities Private Limited . Not for Resale



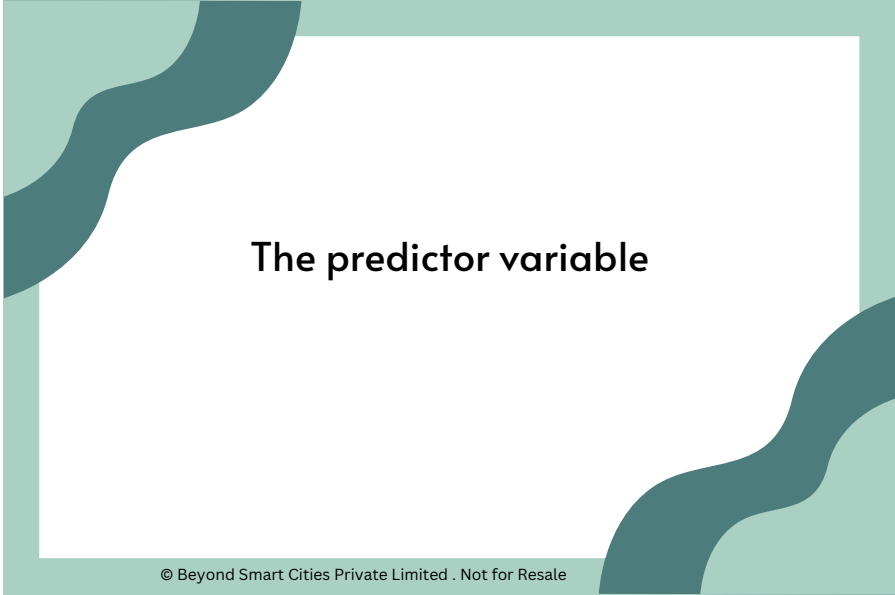
In a design of experiments (DOE) study, the term for the output or result that is being measured is called the response. The response is the variable being studied and can be affected by changes in the independent variables.

© Beyond Smart Cities Private Limited . Not for Resale



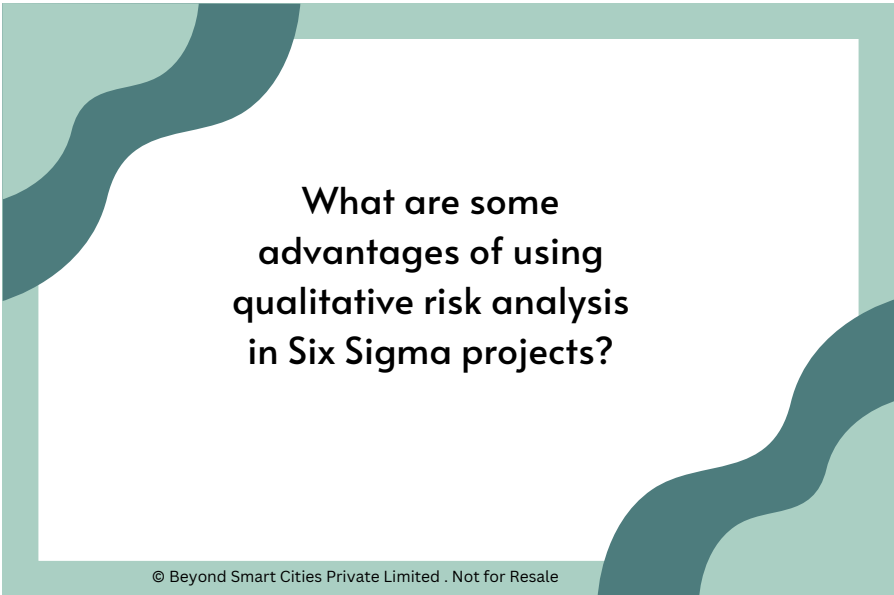
In a regression model,
what is the
independent variable
referred to as?

© Beyond Smart Cities Private Limited . Not for Resale



The predictor variable

© Beyond Smart Cities Private Limited . Not for Resale



What are some
advantages of using
qualitative risk analysis
in Six Sigma projects?

© Beyond Smart Cities Private Limited . Not for Resale



It is less time-consuming
than quantitative risk
analysis

© Beyond Smart Cities Private Limited . Not for Resale



**What is the main goal of
jidoka?**

© Beyond Smart Cities Private Limited . Not for Resale



**To improve the quality of
the product**

© Beyond Smart Cities Private Limited . Not for Resale



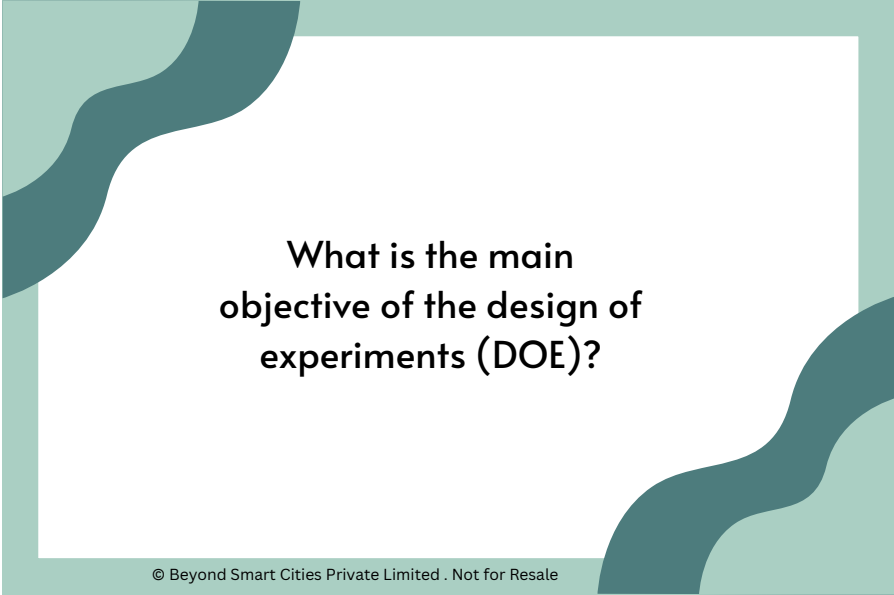
What is a prototype?

© Beyond Smart Cities Private Limited . Not for Resale



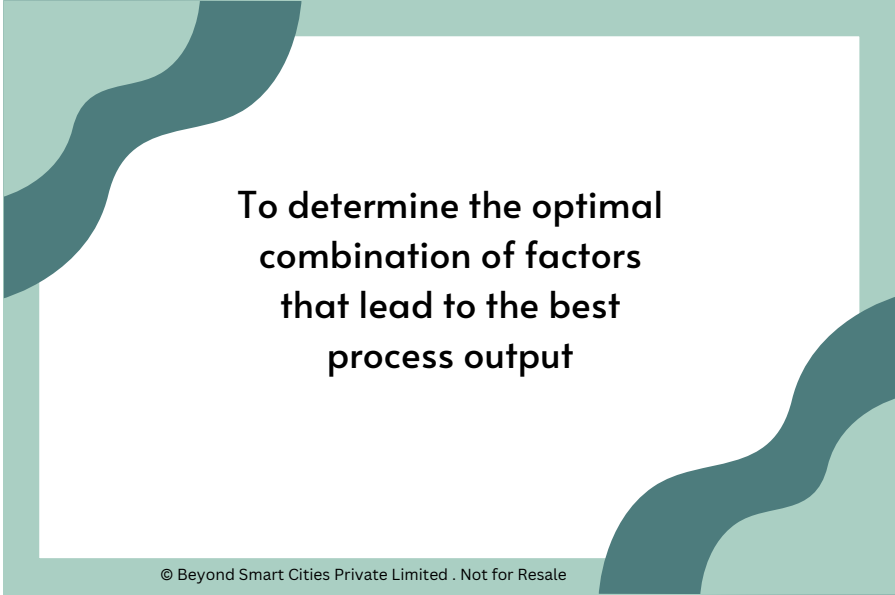
**A small-scale model or
sample of a product or
system used for testing or
evaluation**

© Beyond Smart Cities Private Limited . Not for Resale



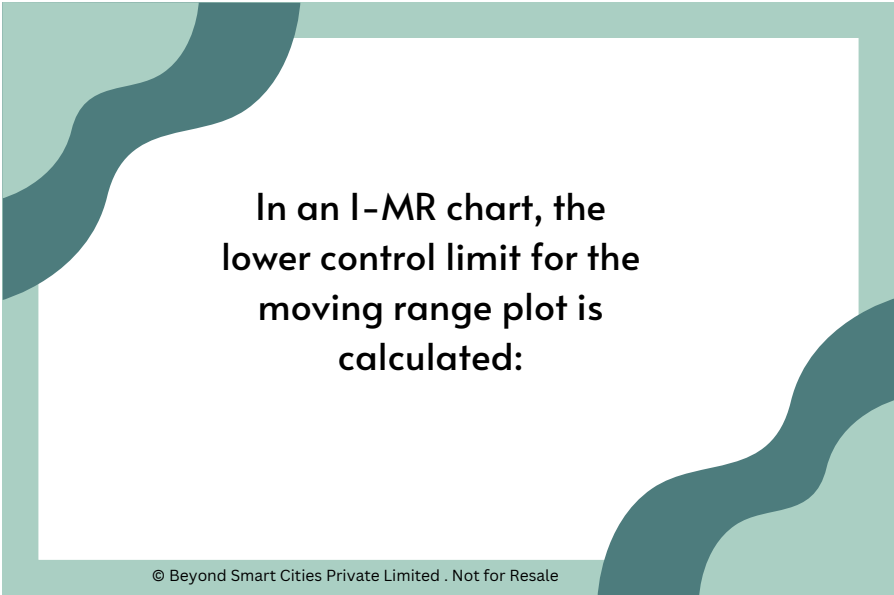
**What is the main
objective of the design of
experiments (DOE)?**

© Beyond Smart Cities Private Limited . Not for Resale



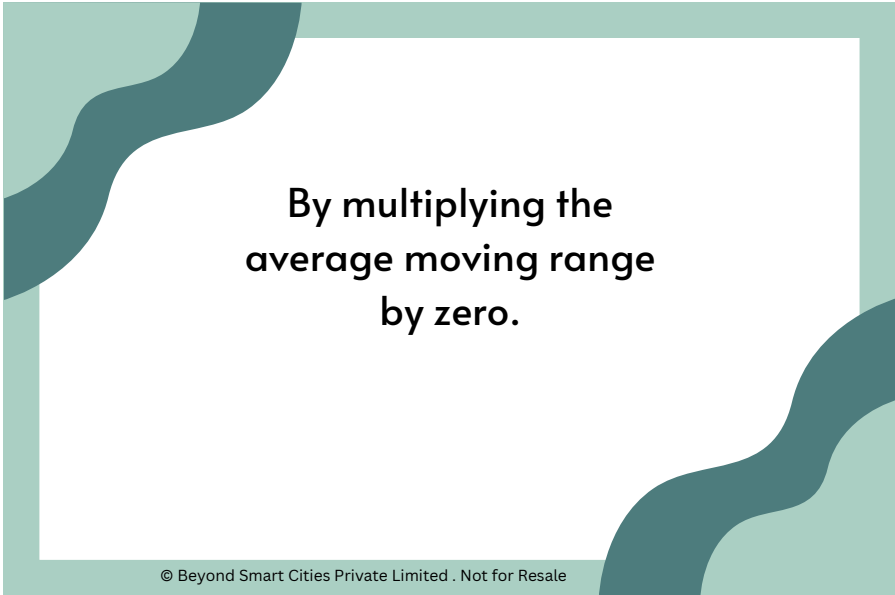
**To determine the optimal
combination of factors
that lead to the best
process output**

© Beyond Smart Cities Private Limited . Not for Resale



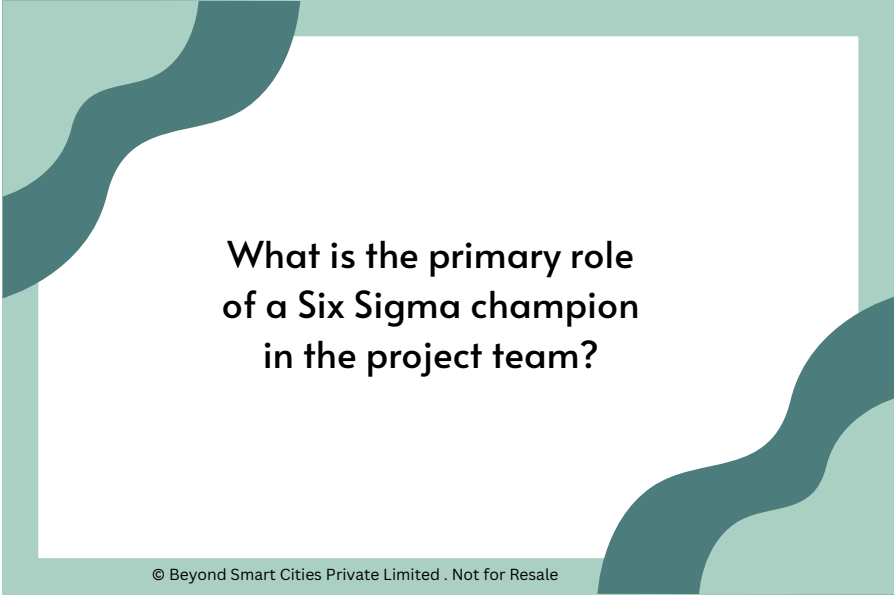
**In an I-MR chart, the
lower control limit for the
moving range plot is
calculated:**

© Beyond Smart Cities Private Limited . Not for Resale



**By multiplying the
average moving range
by zero.**

© Beyond Smart Cities Private Limited . Not for Resale



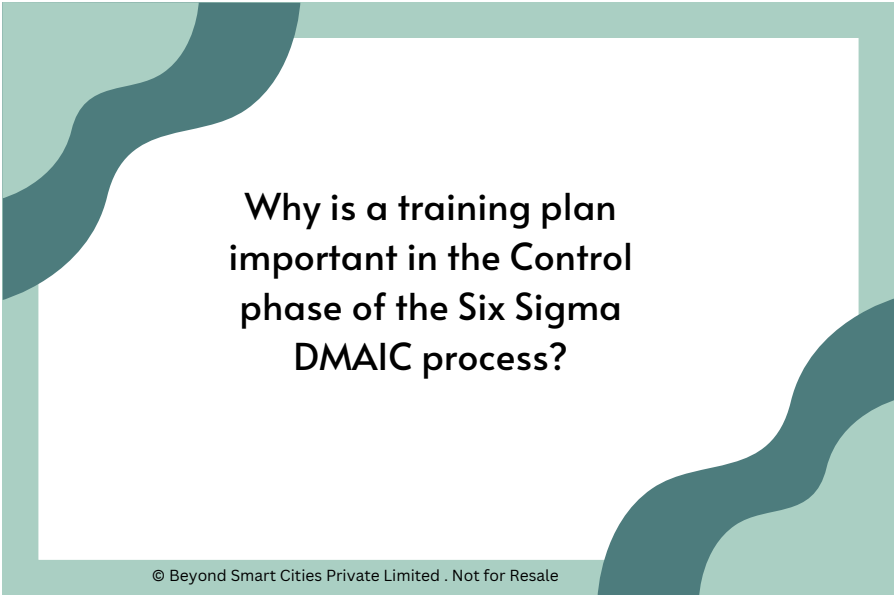
What is the primary role
of a Six Sigma champion
in the project team?

© Beyond Smart Cities Private Limited . Not for Resale



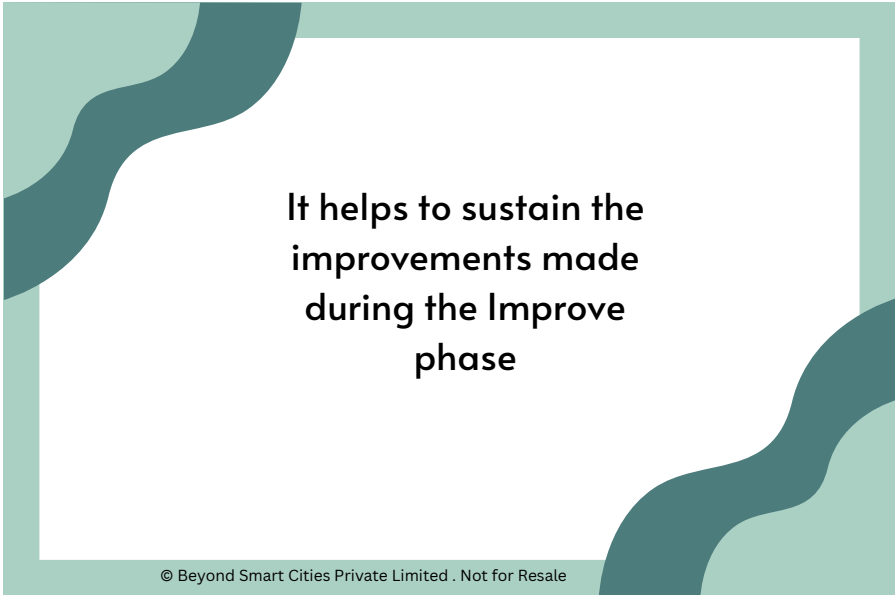
To ensure that the
project is aligned with
the goals and objectives
of the organization

© Beyond Smart Cities Private Limited . Not for Resale



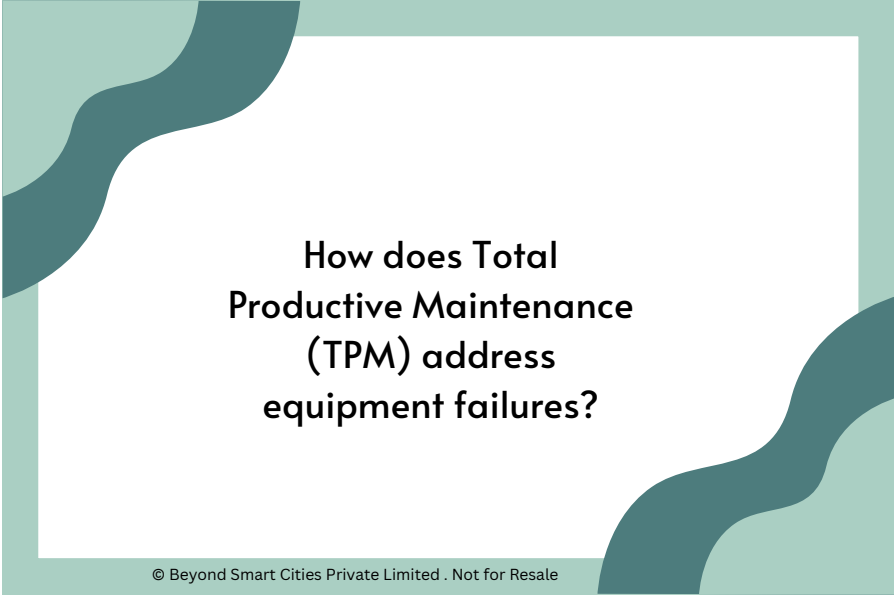
Why is a training plan
important in the Control
phase of the Six Sigma
DMAIC process?

© Beyond Smart Cities Private Limited . Not for Resale



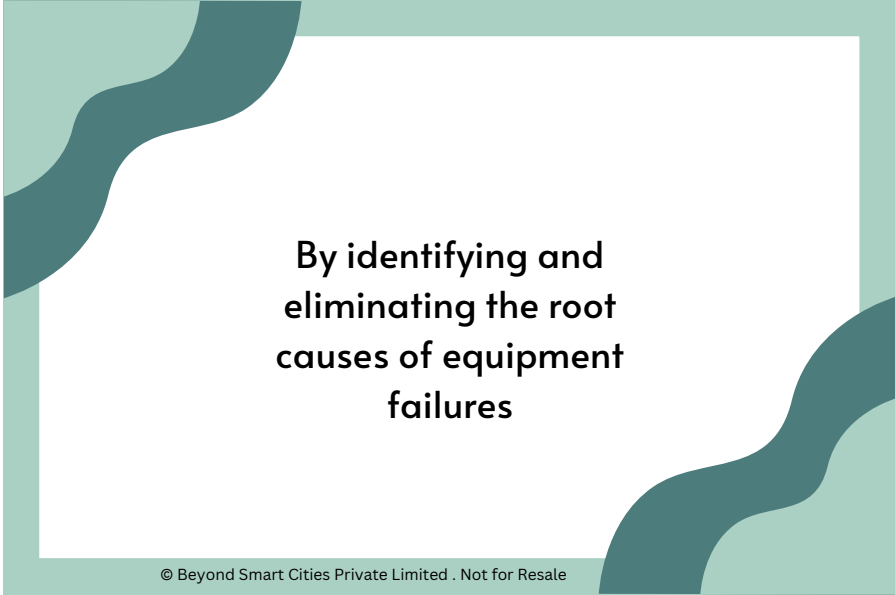
It helps to sustain the
improvements made
during the Improve
phase

© Beyond Smart Cities Private Limited . Not for Resale



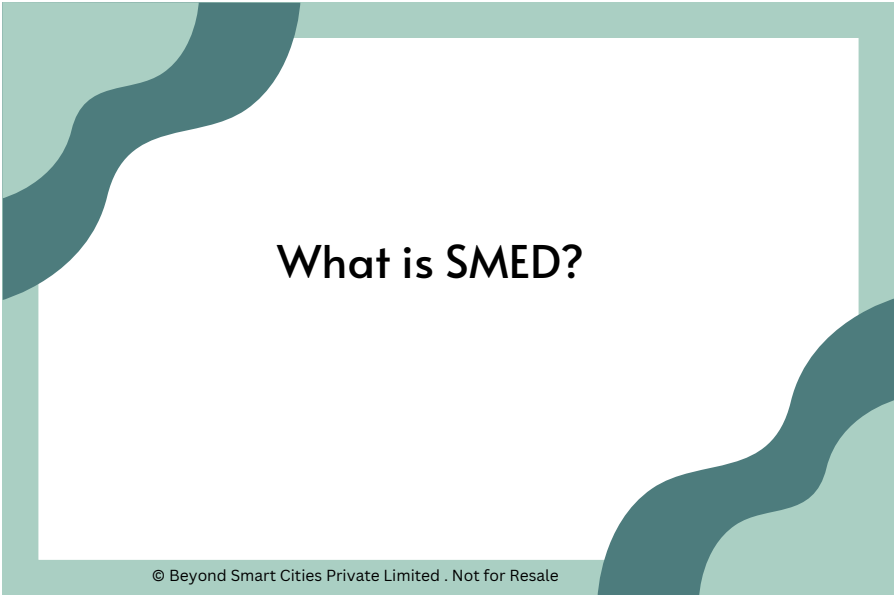
**How does Total
Productive Maintenance
(TPM) address
equipment failures?**

© Beyond Smart Cities Private Limited . Not for Resale



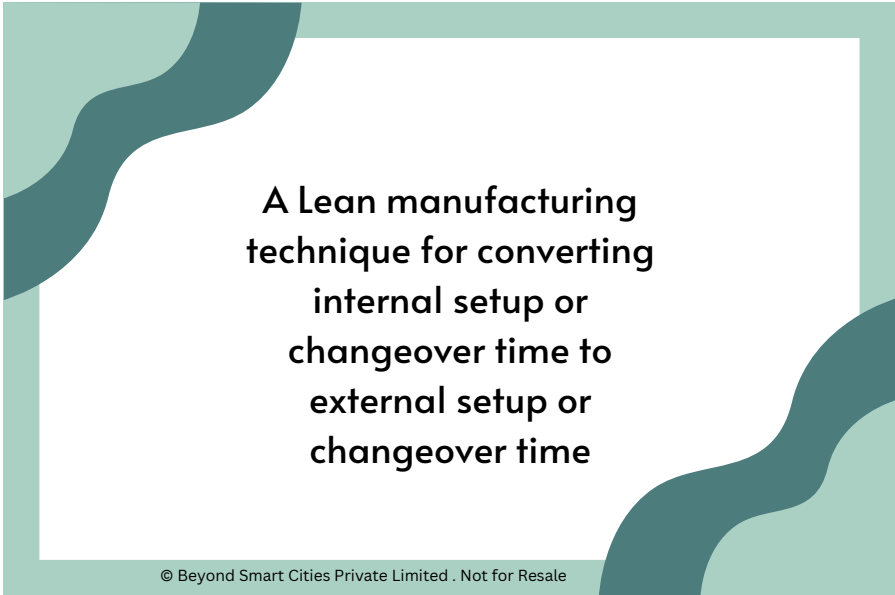
**By identifying and
eliminating the root
causes of equipment
failures**

© Beyond Smart Cities Private Limited . Not for Resale



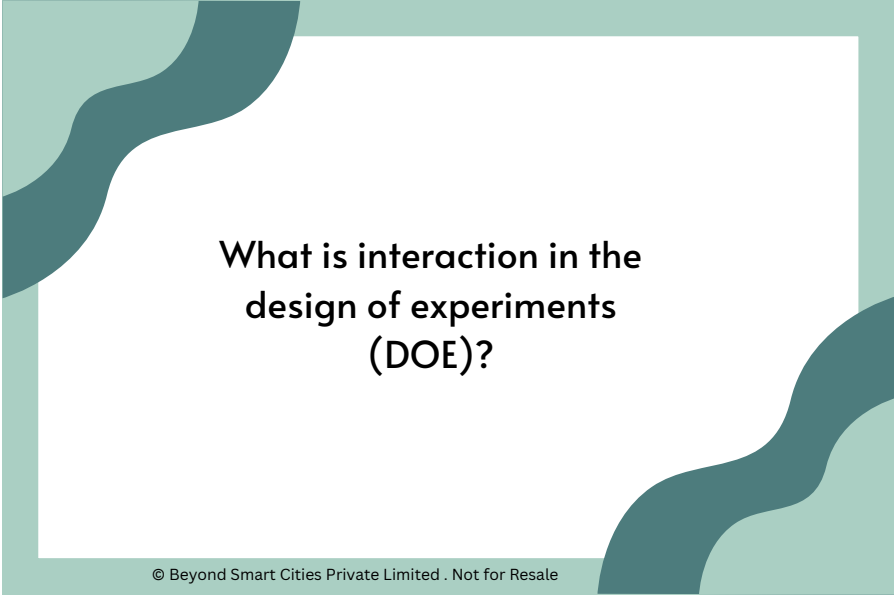
What is SMED?

© Beyond Smart Cities Private Limited . Not for Resale



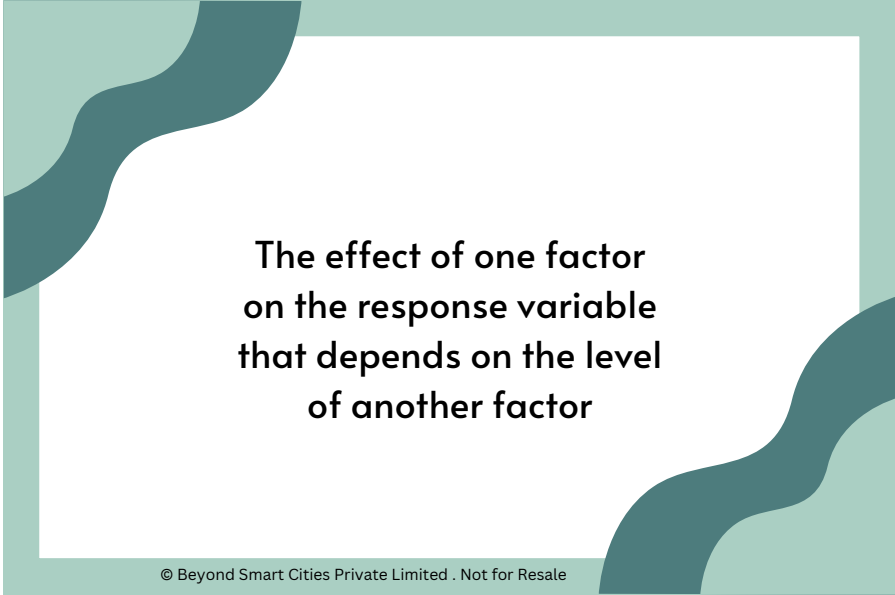
**A Lean manufacturing
technique for converting
internal setup or
changeover time to
external setup or
changeover time**

© Beyond Smart Cities Private Limited . Not for Resale



**What is interaction in the
design of experiments
(DOE)?**

© Beyond Smart Cities Private Limited . Not for Resale



**The effect of one factor
on the response variable
that depends on the level
of another factor**

© Beyond Smart Cities Private Limited . Not for Resale



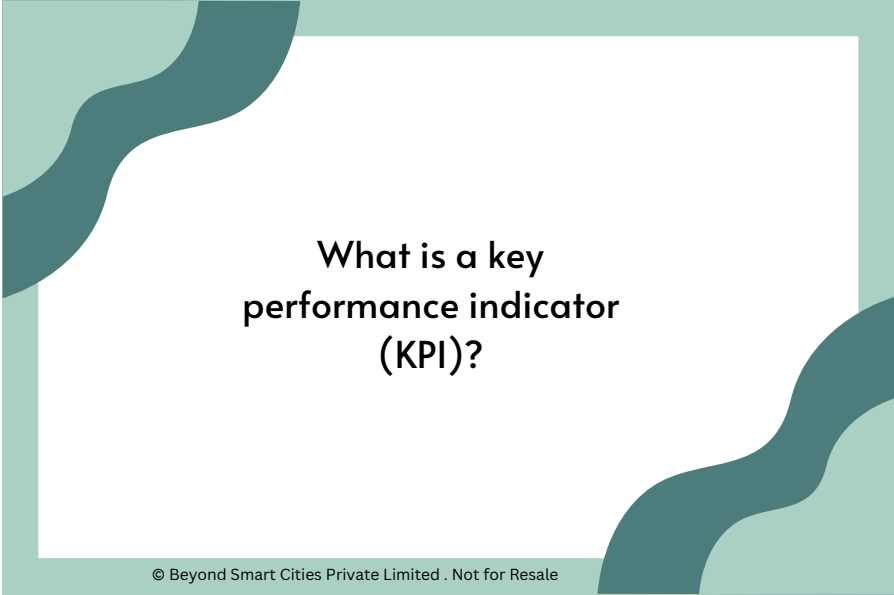
**The Quality Function
Deployment (QFD) is
also known as:**

© Beyond Smart Cities Private Limited . Not for Resale



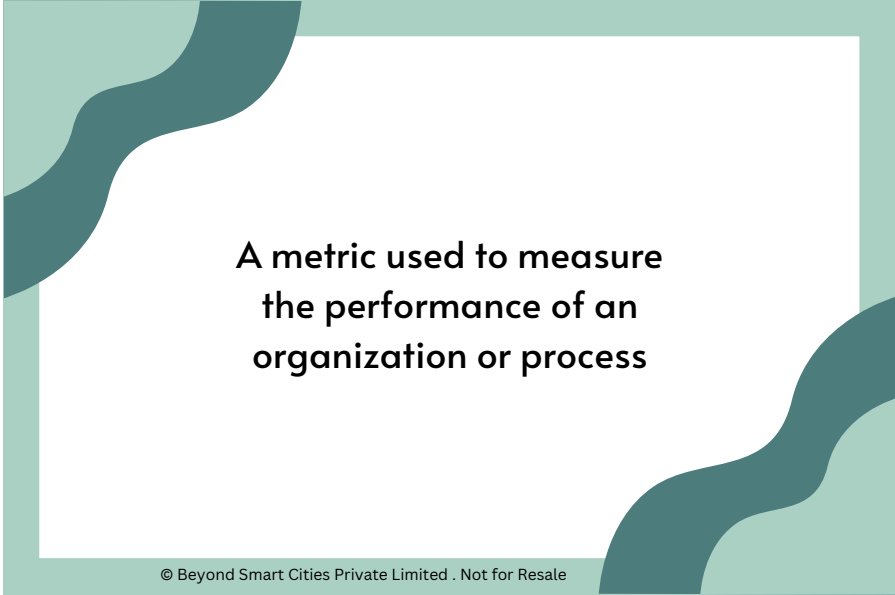
The House of Quality

© Beyond Smart Cities Private Limited . Not for Resale



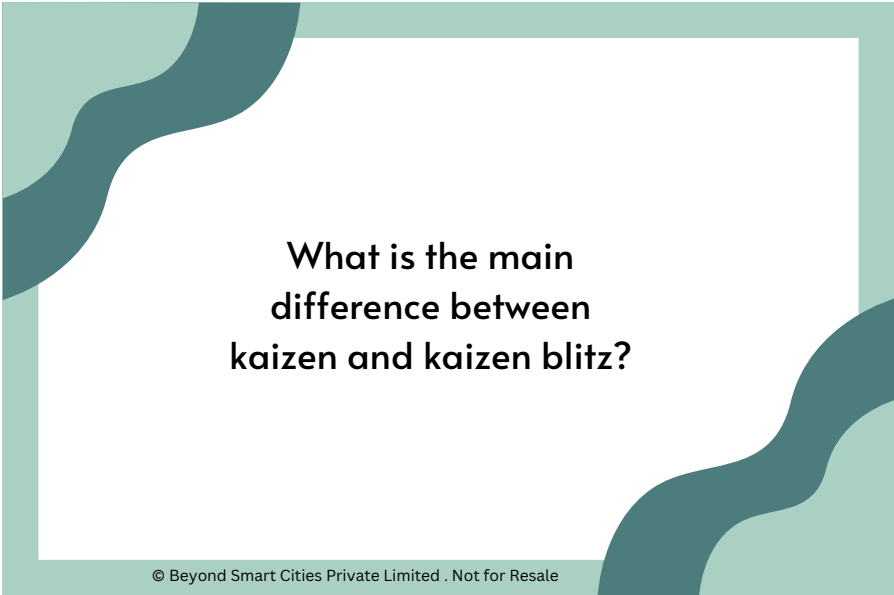
**What is a key
performance indicator
(KPI)?**

© Beyond Smart Cities Private Limited . Not for Resale



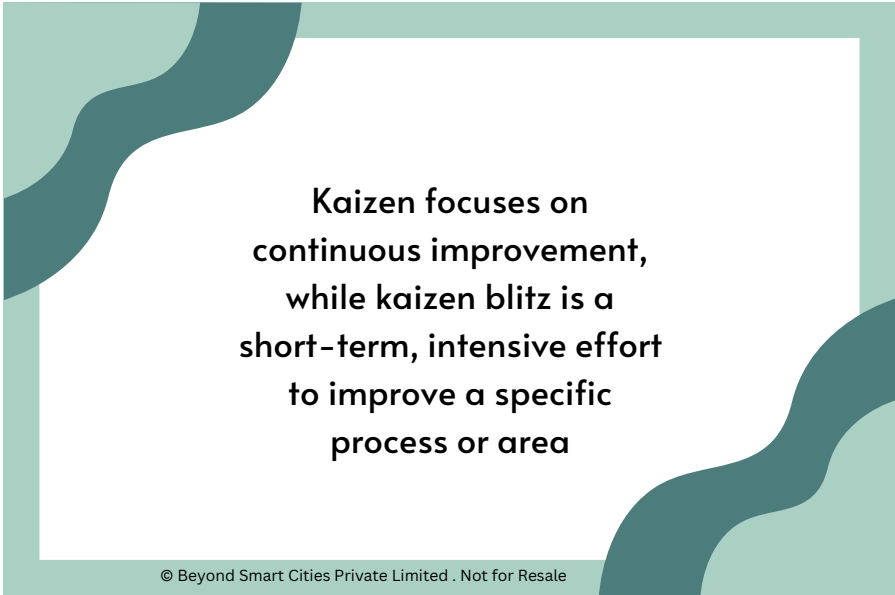
**A metric used to measure
the performance of an
organization or process**

© Beyond Smart Cities Private Limited . Not for Resale



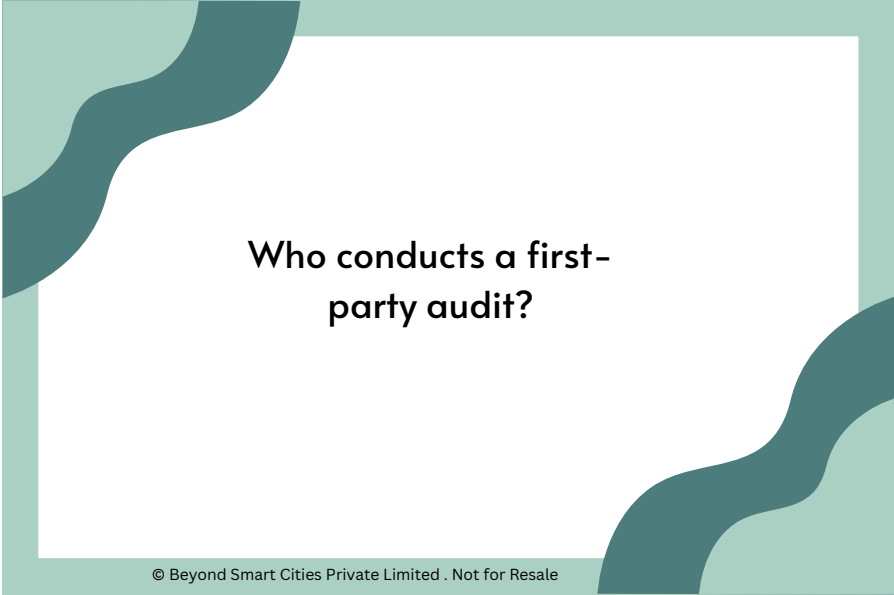
**What is the main
difference between
kaizen and kaizen blitz?**

© Beyond Smart Cities Private Limited . Not for Resale



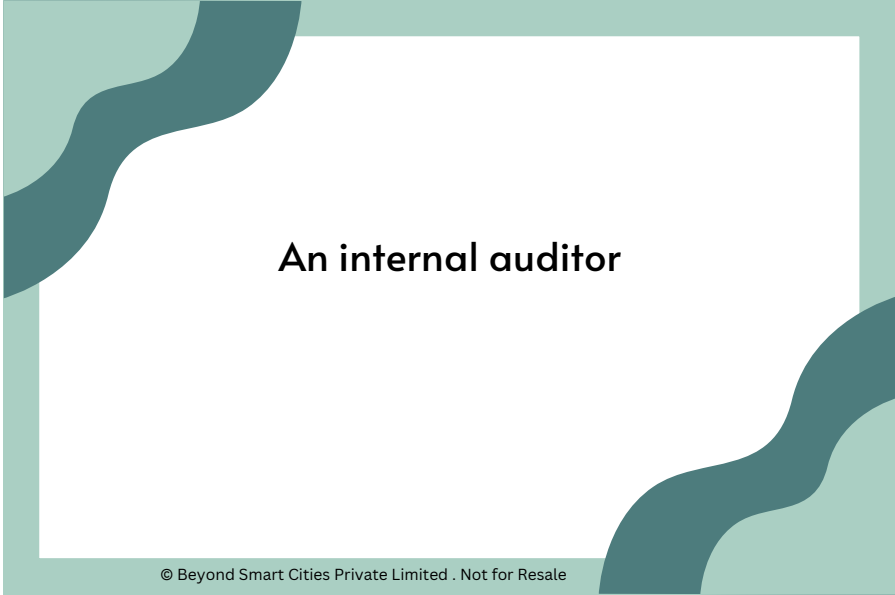
**Kaizen focuses on
continuous improvement,
while kaizen blitz is a
short-term, intensive effort
to improve a specific
process or area**

© Beyond Smart Cities Private Limited . Not for Resale



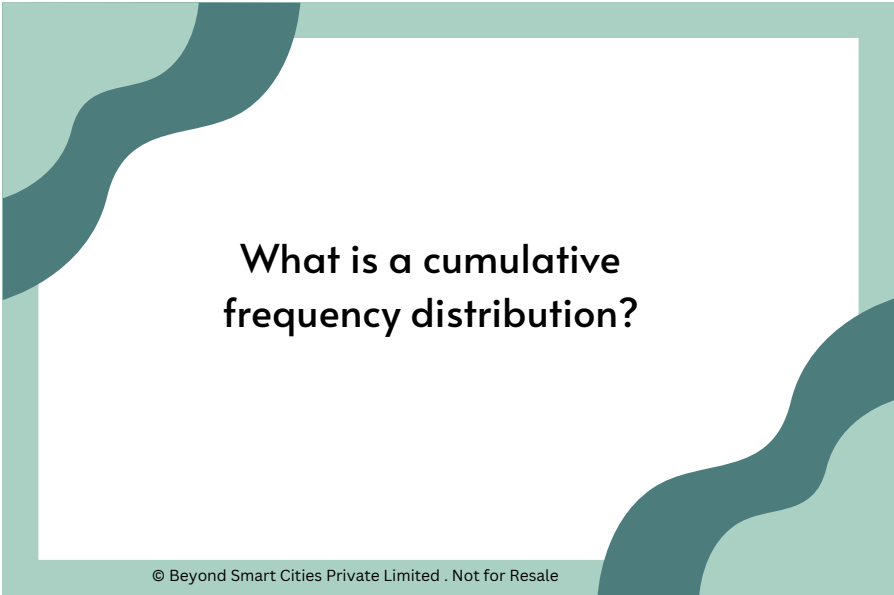
Who conducts a first-party audit?

© Beyond Smart Cities Private Limited . Not for Resale



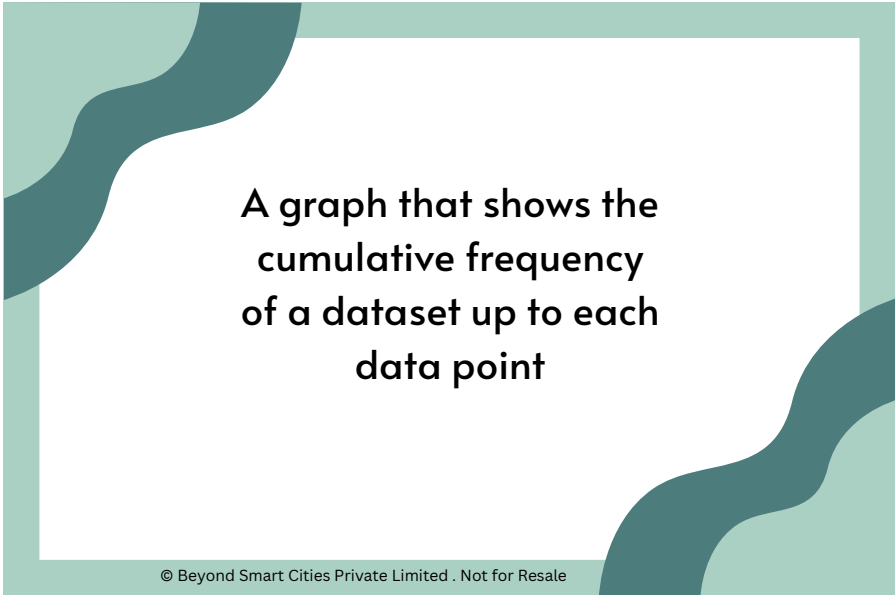
An internal auditor

© Beyond Smart Cities Private Limited . Not for Resale



What is a cumulative frequency distribution?

© Beyond Smart Cities Private Limited . Not for Resale



A graph that shows the cumulative frequency of a dataset up to each data point

© Beyond Smart Cities Private Limited . Not for Resale

What are the five "S"s in 5S?

© Beyond Smart Cities Private Limited . Not for Resale

Sort, Set in Order, Shine,
Standardize, Sustain

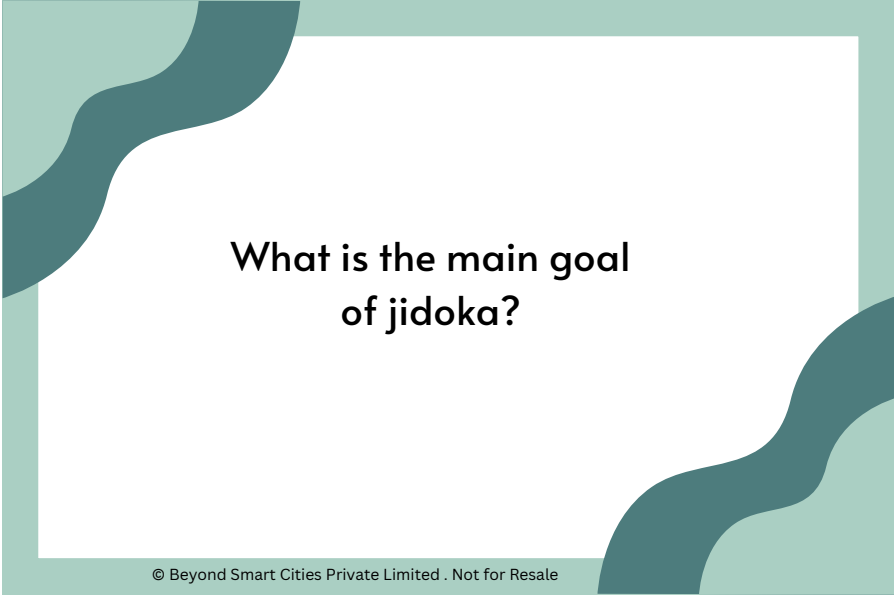
© Beyond Smart Cities Private Limited . Not for Resale

What should be done if
special cause variation
is identified in a control
chart?

© Beyond Smart Cities Private Limited . Not for Resale

Investigate the cause
of the special cause
variation and
implement corrective
action

© Beyond Smart Cities Private Limited . Not for Resale



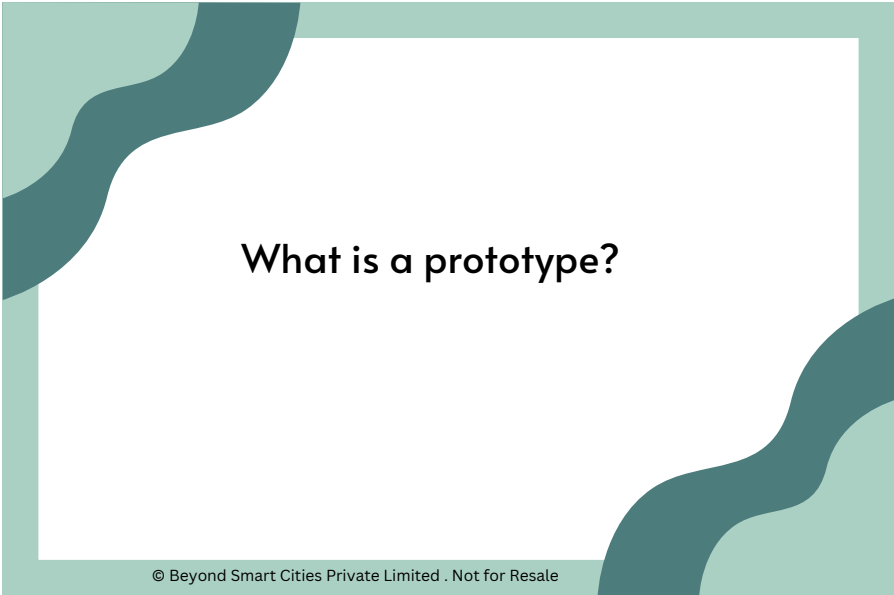
**What is the main goal
of jidoka?**

© Beyond Smart Cities Private Limited . Not for Resale



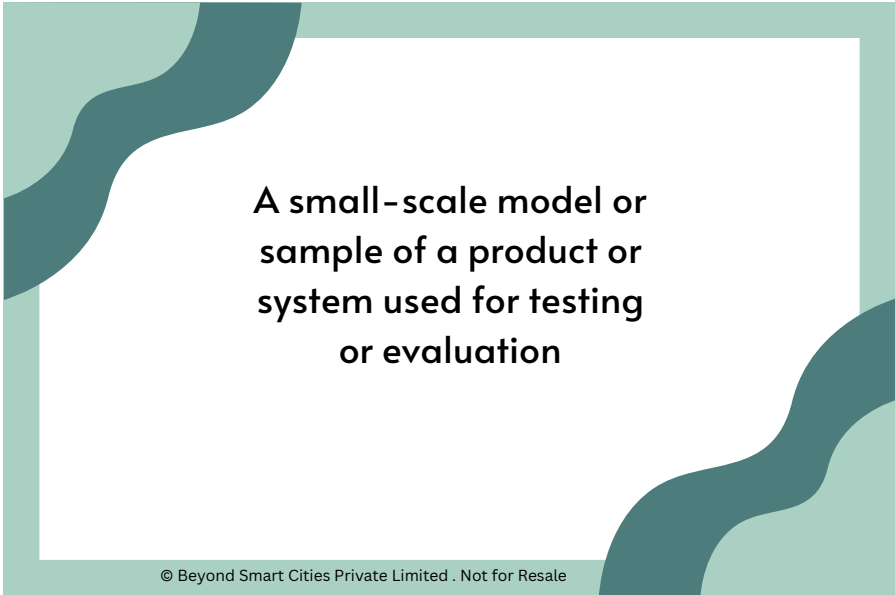
**To improve the quality of
the product**

© Beyond Smart Cities Private Limited . Not for Resale



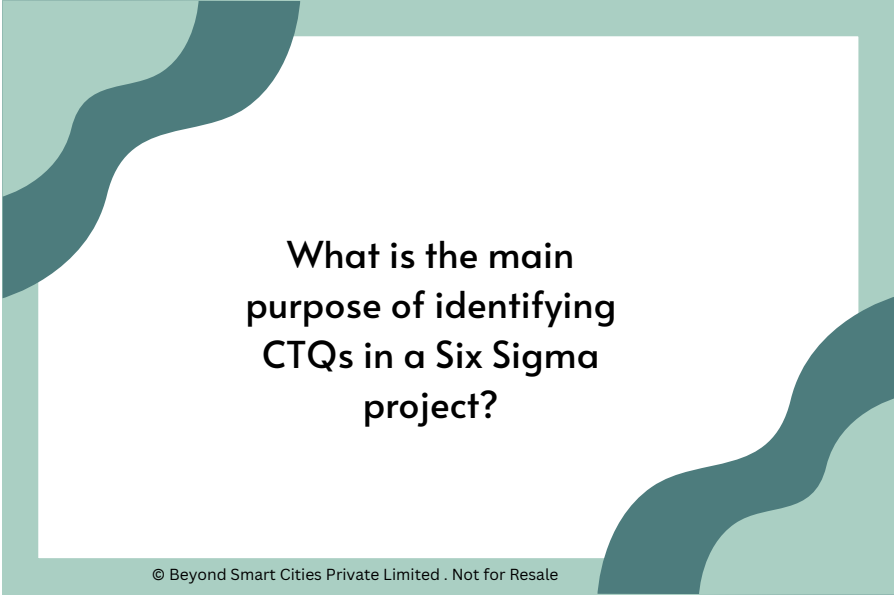
What is a prototype?

© Beyond Smart Cities Private Limited . Not for Resale



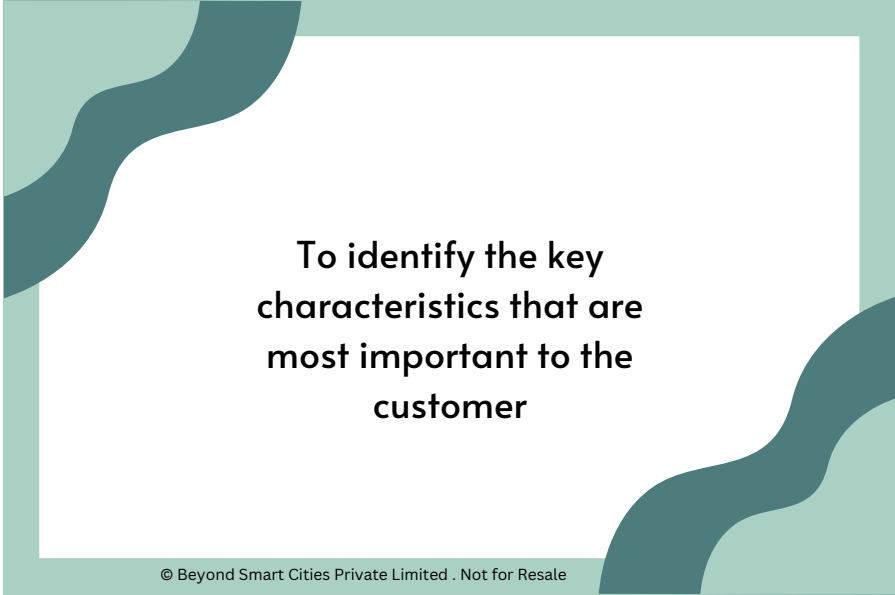
**A small-scale model or
sample of a product or
system used for testing
or evaluation**

© Beyond Smart Cities Private Limited . Not for Resale



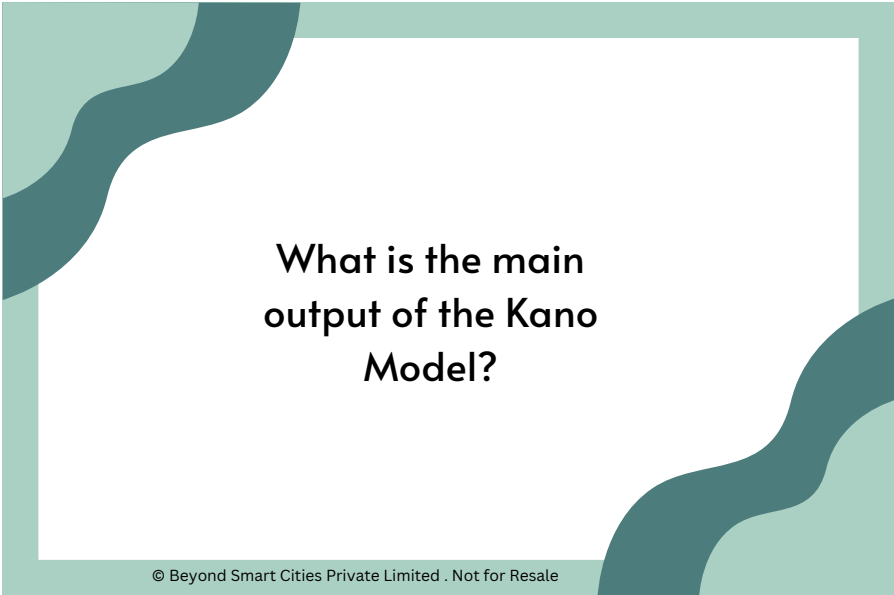
**What is the main
purpose of identifying
CTQs in a Six Sigma
project?**

© Beyond Smart Cities Private Limited . Not for Resale



**To identify the key
characteristics that are
most important to the
customer**

© Beyond Smart Cities Private Limited . Not for Resale



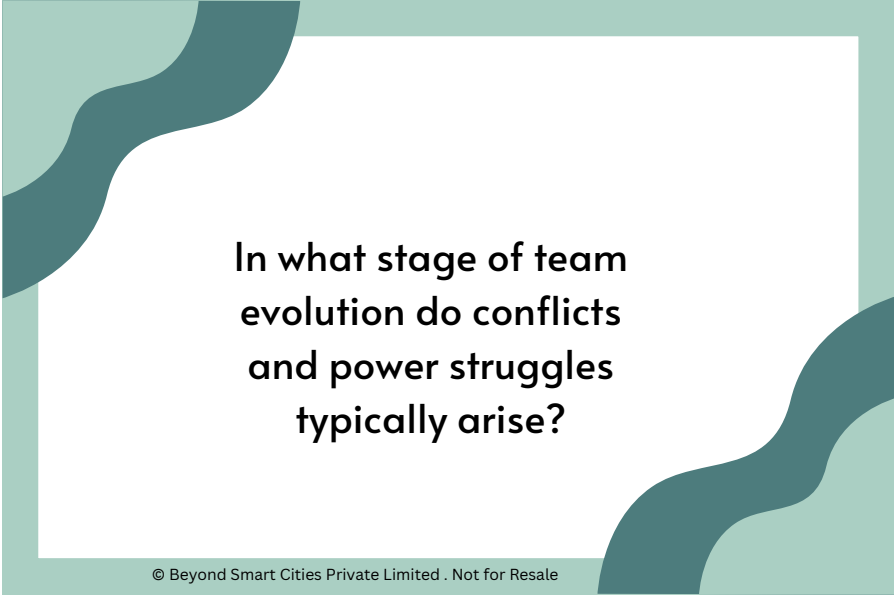
**What is the main
output of the Kano
Model?**

© Beyond Smart Cities Private Limited . Not for Resale



**A list of customer
requirements prioritized
based on their impact on
customer satisfaction**

© Beyond Smart Cities Private Limited . Not for Resale

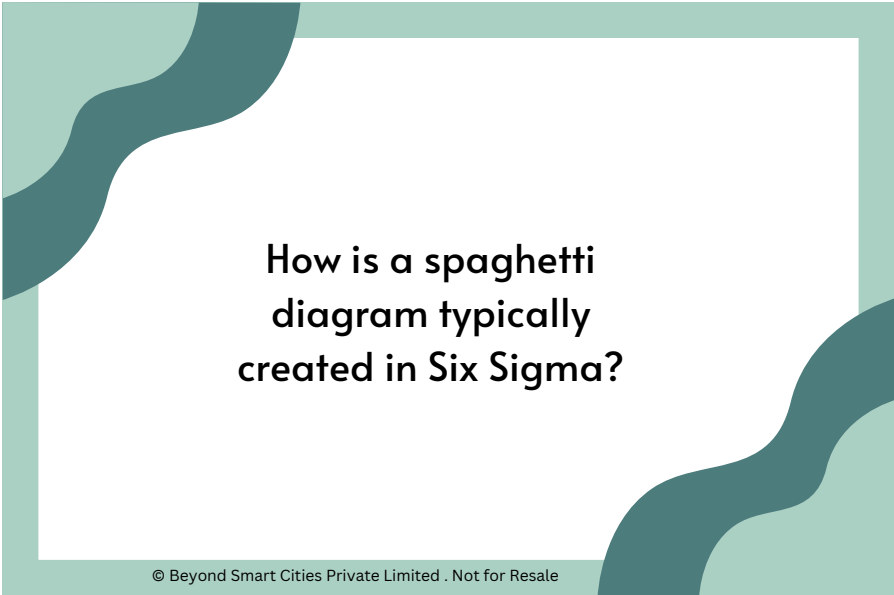


In what stage of team evolution do conflicts and power struggles typically arise?

© Beyond Smart Cities Private Limited . Not for Resale

Storming

© Beyond Smart Cities Private Limited . Not for Resale



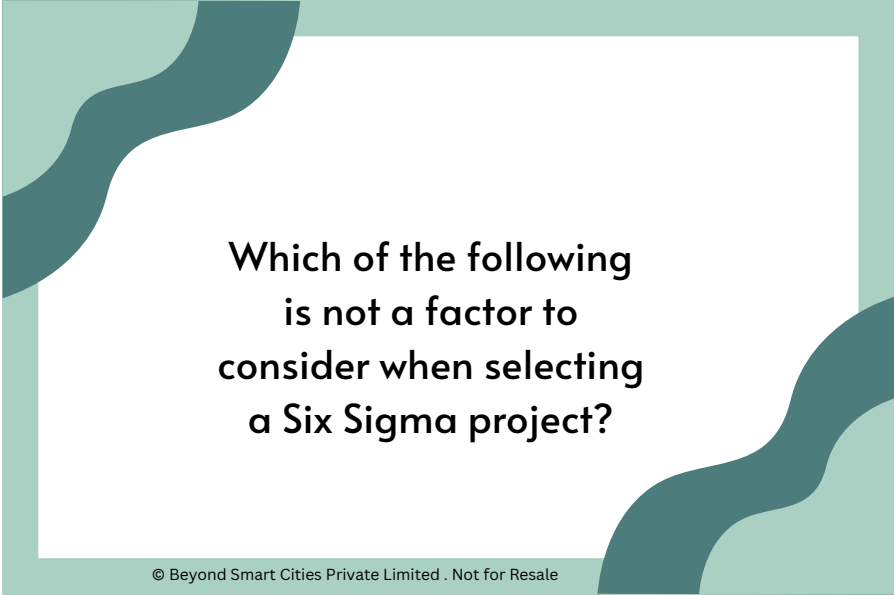
How is a spaghetti diagram typically created in Six Sigma?

© Beyond Smart Cities Private Limited . Not for Resale



By collecting data on the movement of people, materials, or information in a process and plotting it on a graph

© Beyond Smart Cities Private Limited . Not for Resale



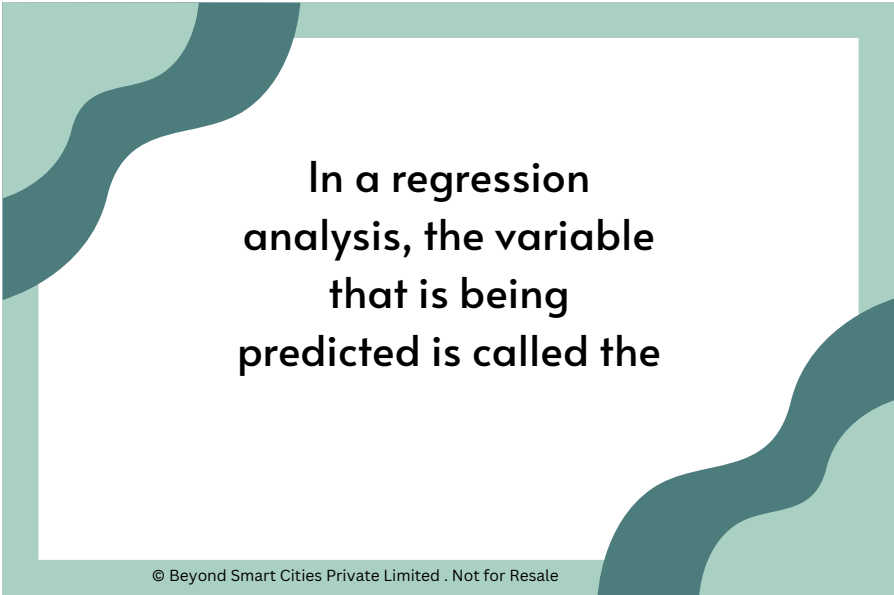
Which of the following
is not a factor to
consider when selecting
a Six Sigma project?

© Beyond Smart Cities Private Limited . Not for Resale



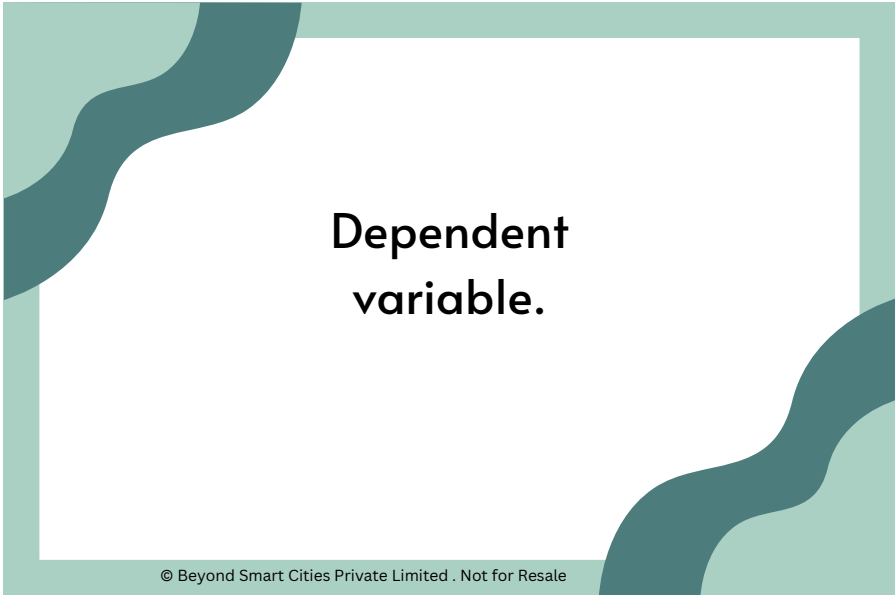
The size of the
project team

© Beyond Smart Cities Private Limited . Not for Resale



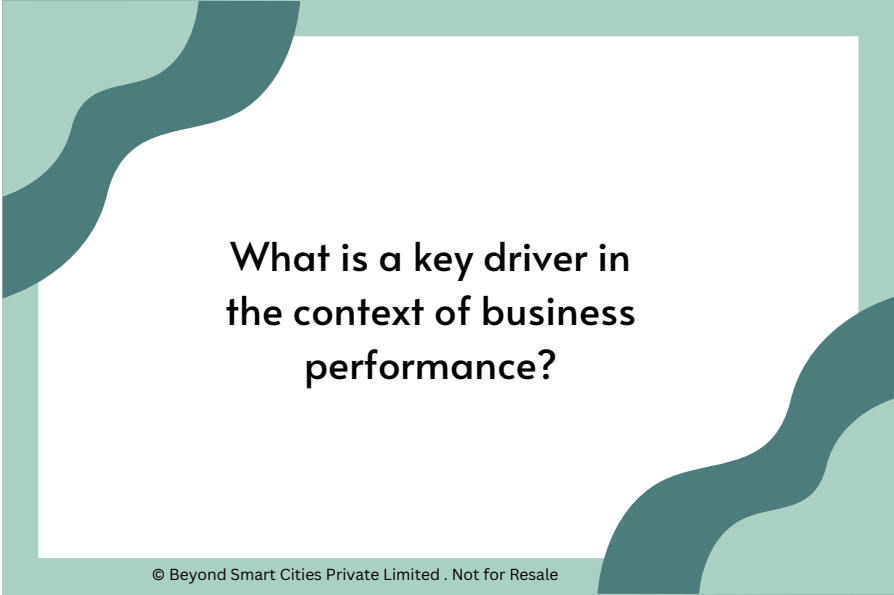
In a regression
analysis, the variable
that is being
predicted is called the

© Beyond Smart Cities Private Limited . Not for Resale



Dependent
variable.

© Beyond Smart Cities Private Limited . Not for Resale



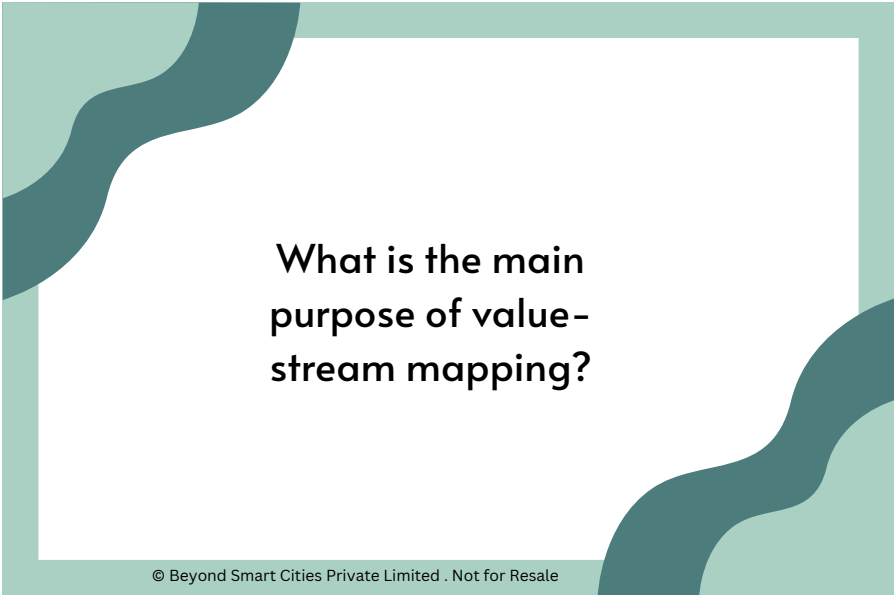
**What is a key driver in
the context of business
performance?**

© Beyond Smart Cities Private Limited . Not for Resale



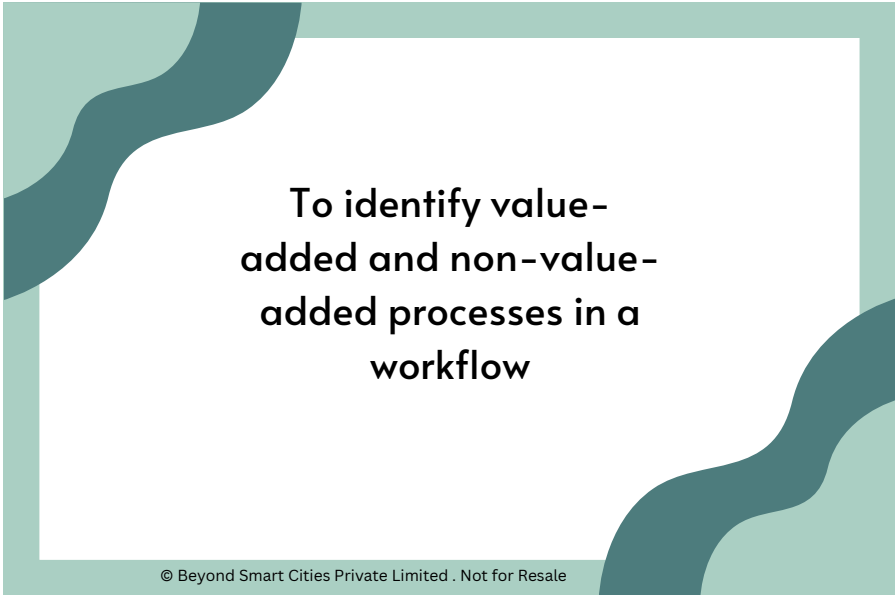
**A factor that
significantly influences
the performance of an
organization or process**

© Beyond Smart Cities Private Limited . Not for Resale



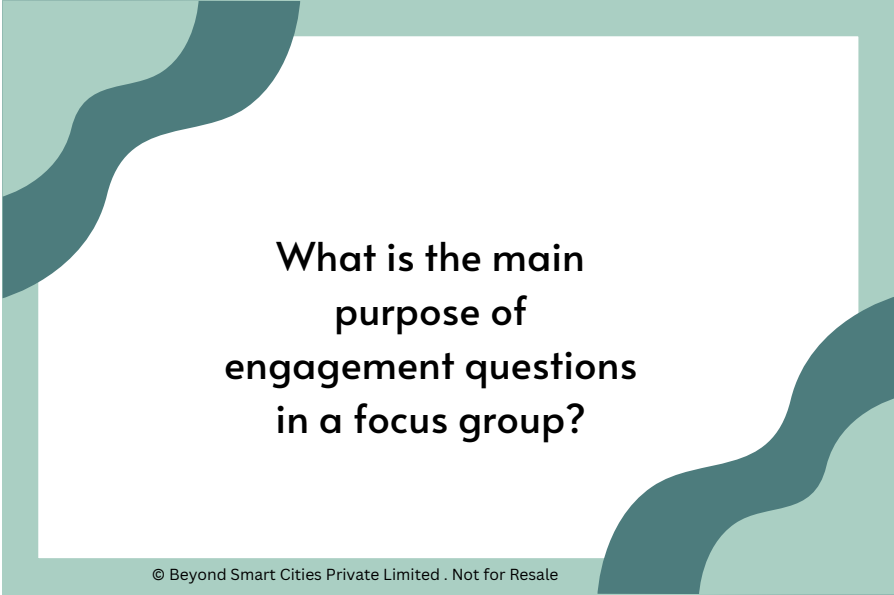
**What is the main
purpose of value-
stream mapping?**

© Beyond Smart Cities Private Limited . Not for Resale



**To identify value-
added and non-value-
added processes in a
workflow**

© Beyond Smart Cities Private Limited . Not for Resale



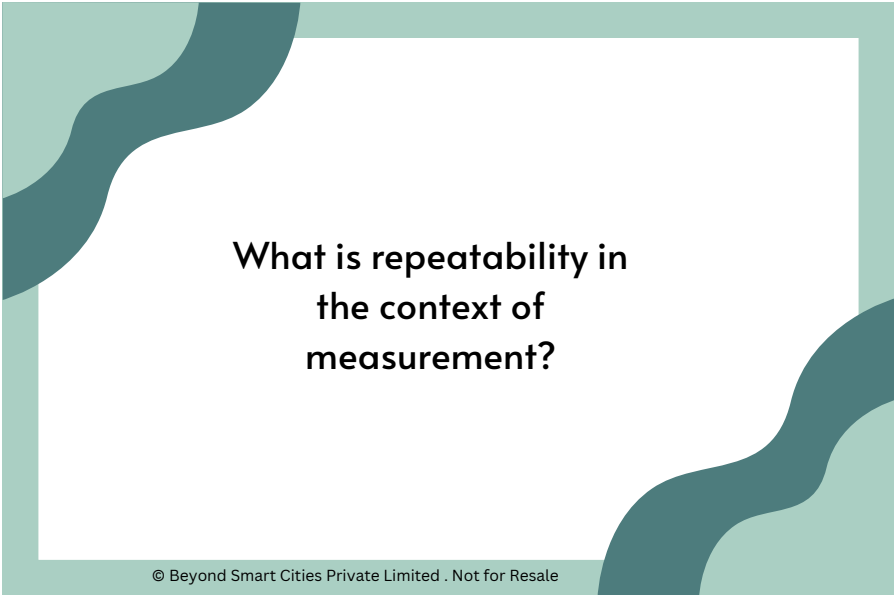
**What is the main
purpose of
engagement questions
in a focus group?**

© Beyond Smart Cities Private Limited . Not for Resale



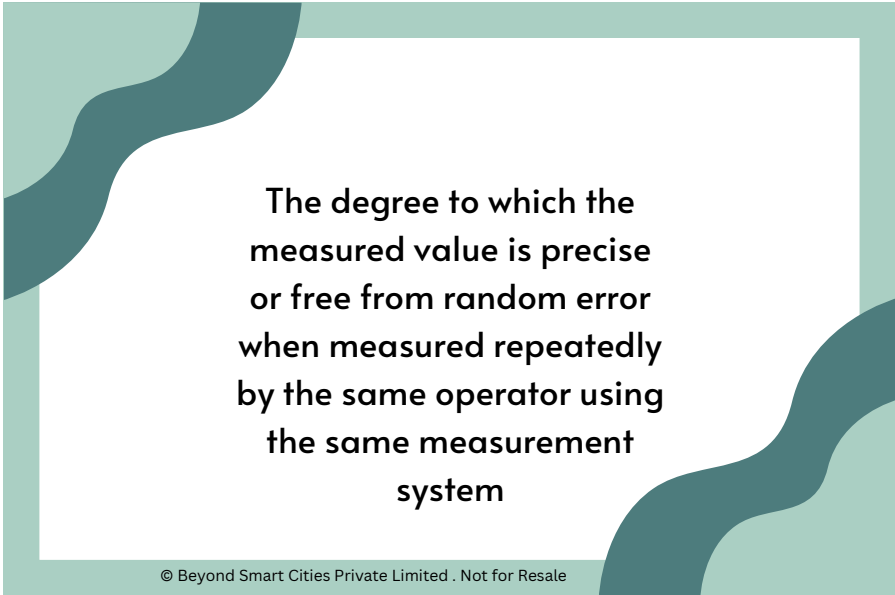
**To build rapport and
make participants
comfortable with the
process**

© Beyond Smart Cities Private Limited . Not for Resale



**What is repeatability in
the context of
measurement?**

© Beyond Smart Cities Private Limited . Not for Resale



**The degree to which the
measured value is precise
or free from random error
when measured repeatedly
by the same operator using
the same measurement
system**

© Beyond Smart Cities Private Limited . Not for Resale

What is the formula for calculating the value of a student's t-distribution?

© Beyond Smart Cities Private Limited . Not for Resale

$$t = (x - \mu) / (s/n)$$

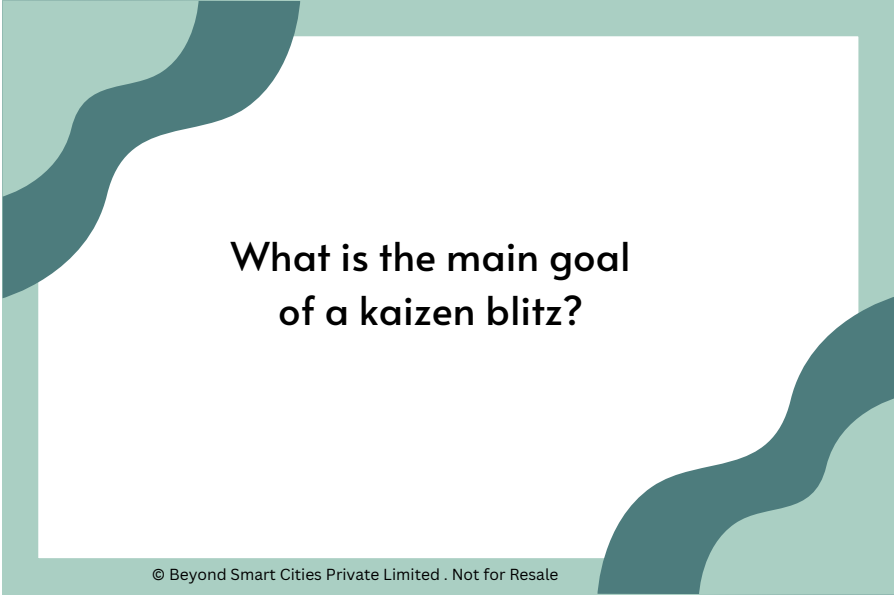
© Beyond Smart Cities Private Limited . Not for Resale

What is a scatter diagram?

© Beyond Smart Cities Private Limited . Not for Resale

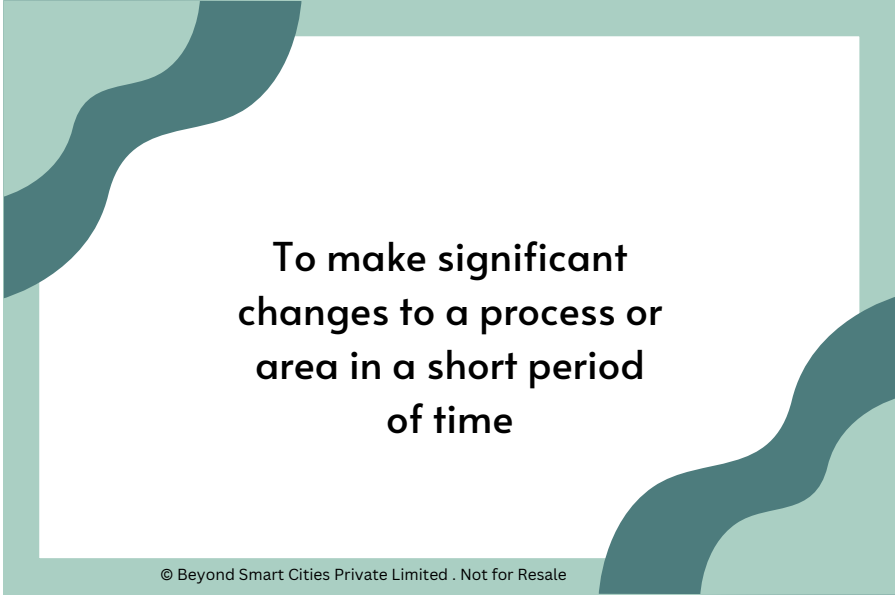
A graph that shows the relationship between two continuous variables

© Beyond Smart Cities Private Limited . Not for Resale

A square slide with a light green border and dark green wavy corner accents. The text is centered in a bold, black, sans-serif font.

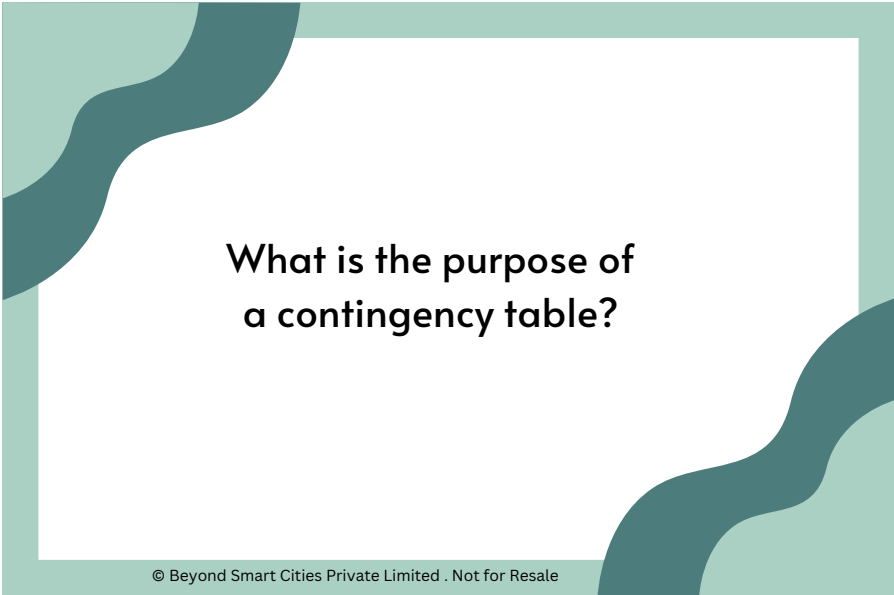
**What is the main goal
of a kaizen blitz?**

© Beyond Smart Cities Private Limited . Not for Resale

A square slide with a light green border and dark green wavy corner accents. The text is centered in a bold, black, sans-serif font.

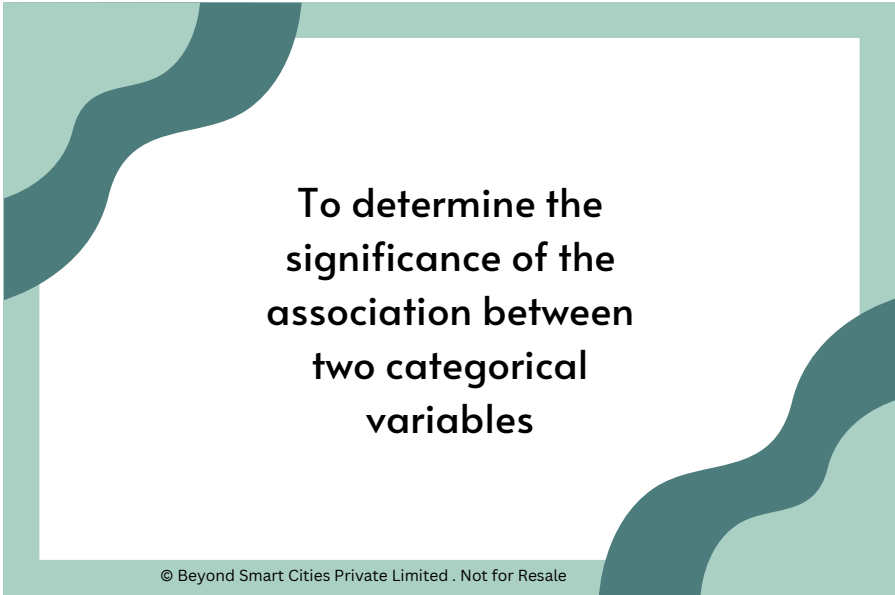
**To make significant
changes to a process or
area in a short period
of time**

© Beyond Smart Cities Private Limited . Not for Resale

A square slide with a light green border and dark green wavy corner accents. The text is centered in a bold, black, sans-serif font.

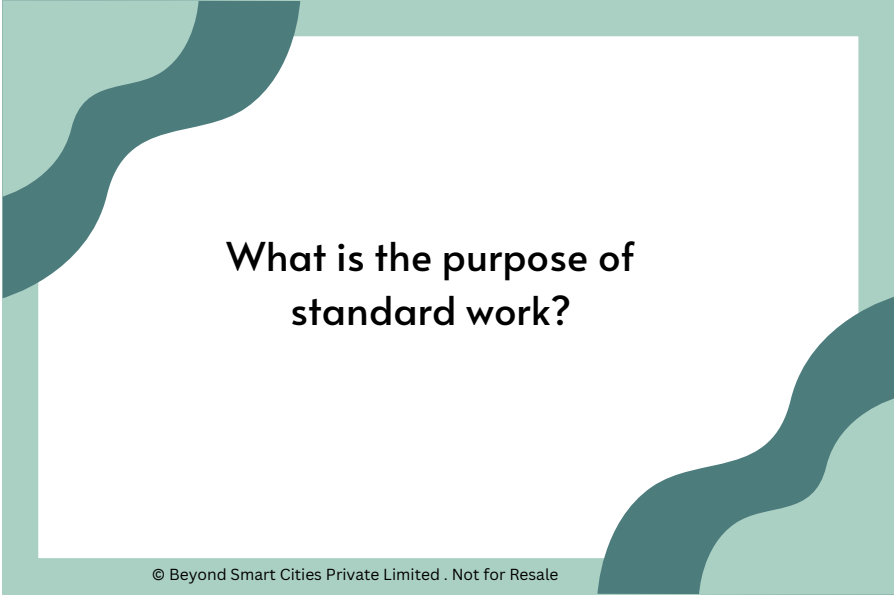
**What is the purpose of
a contingency table?**

© Beyond Smart Cities Private Limited . Not for Resale

A square slide with a light green border and dark green wavy corner accents. The text is centered in a bold, black, sans-serif font.

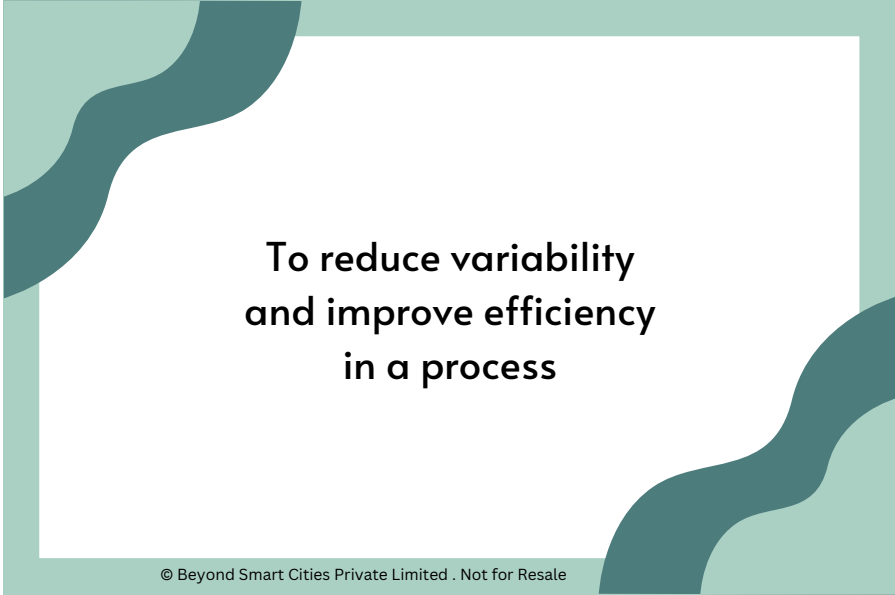
**To determine the
significance of the
association between
two categorical
variables**

© Beyond Smart Cities Private Limited . Not for Resale



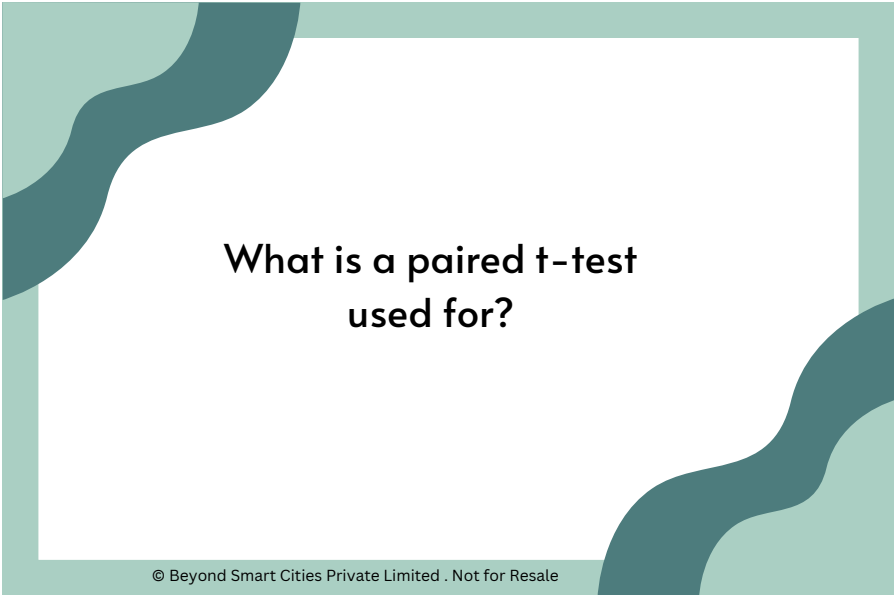
**What is the purpose of
standard work?**

© Beyond Smart Cities Private Limited . Not for Resale



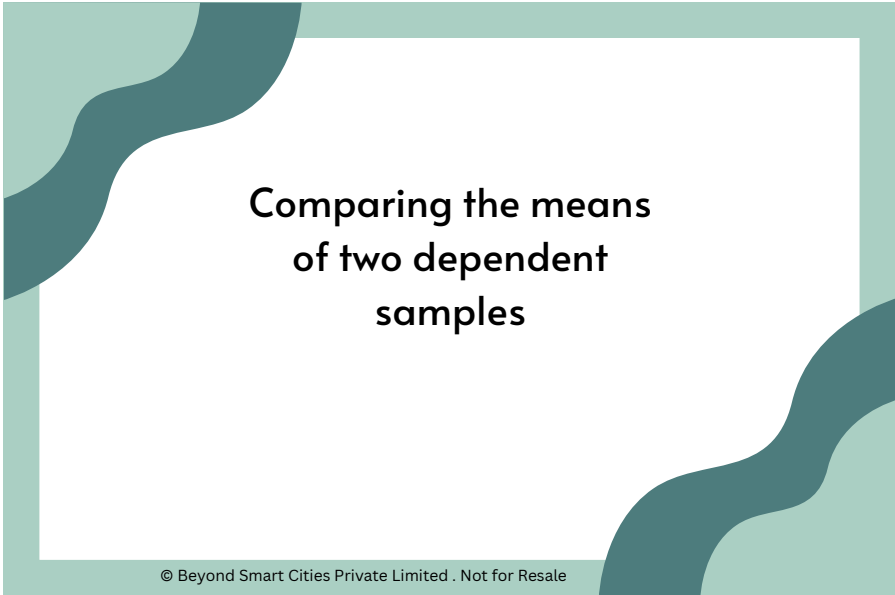
**To reduce variability
and improve efficiency
in a process**

© Beyond Smart Cities Private Limited . Not for Resale



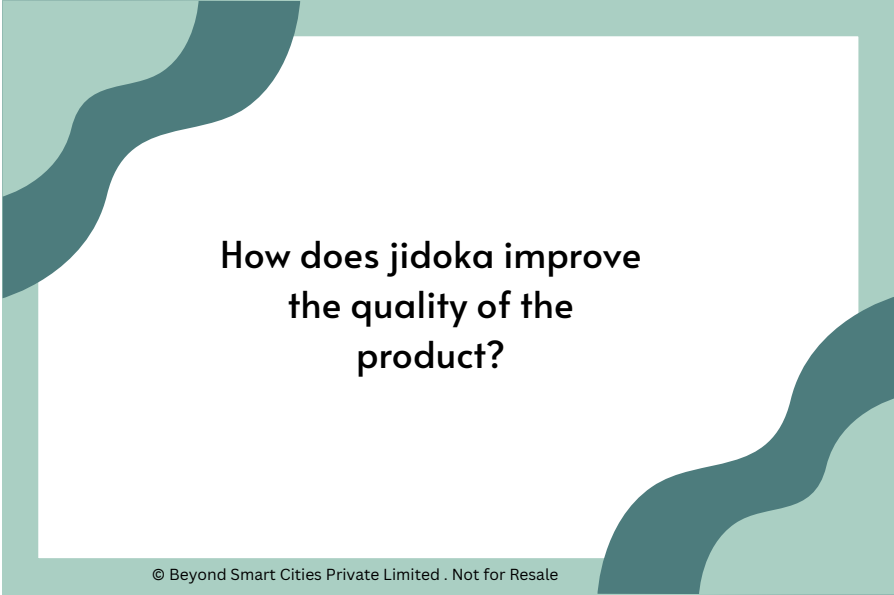
**What is a paired t-test
used for?**

© Beyond Smart Cities Private Limited . Not for Resale



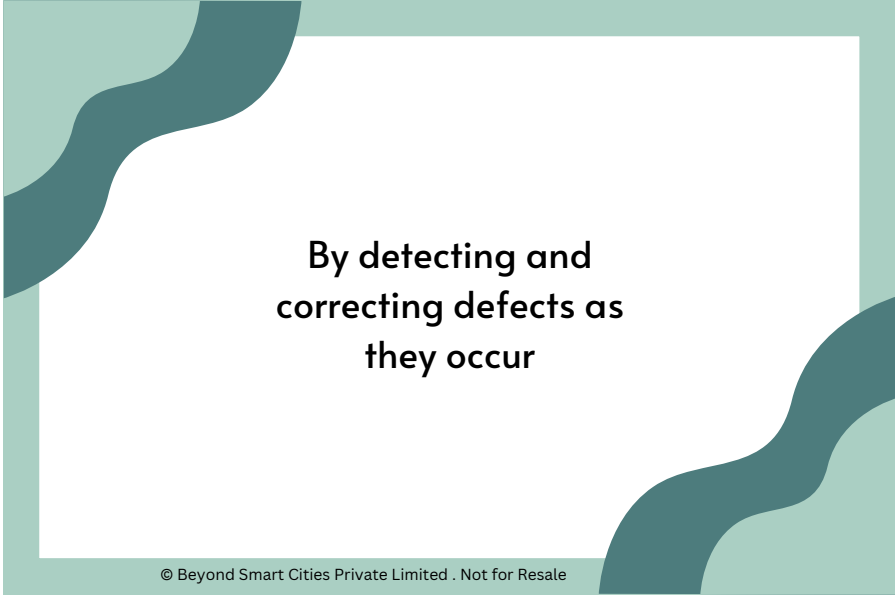
**Comparing the means
of two dependent
samples**

© Beyond Smart Cities Private Limited . Not for Resale



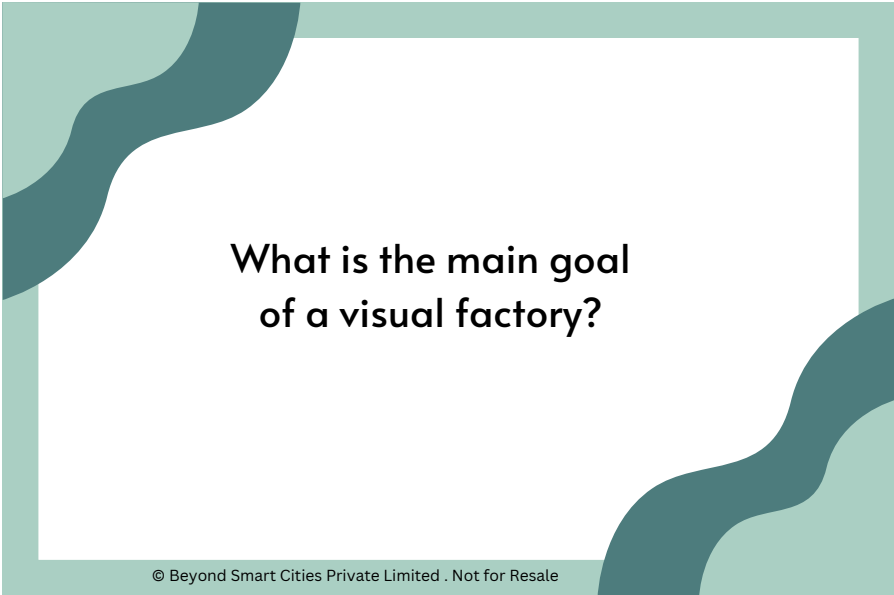
**How does jidoka improve
the quality of the
product?**

© Beyond Smart Cities Private Limited . Not for Resale



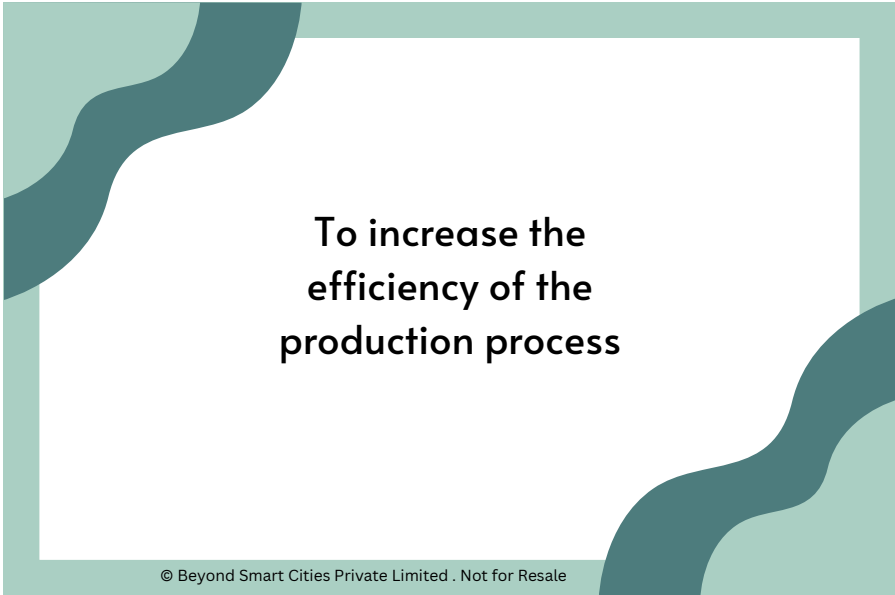
**By detecting and
correcting defects as
they occur**

© Beyond Smart Cities Private Limited . Not for Resale



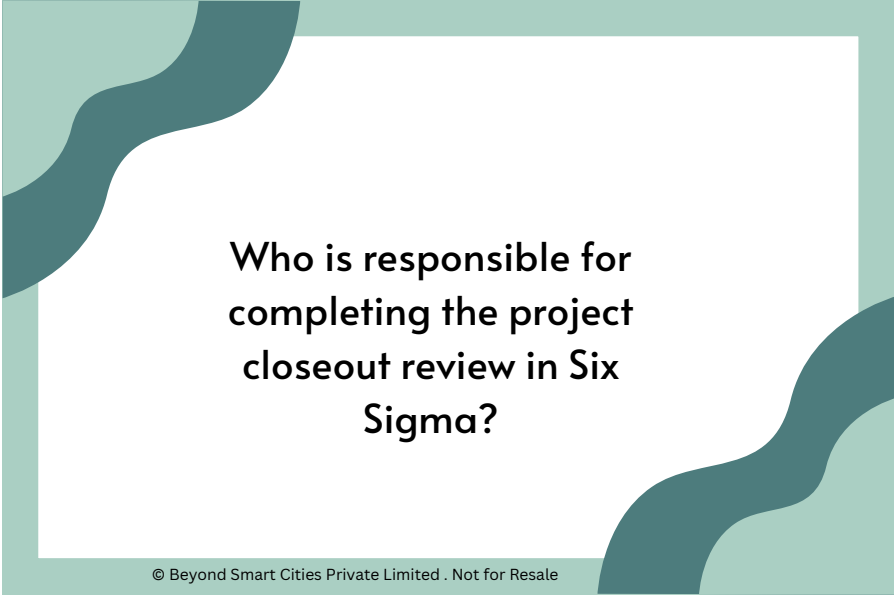
**What is the main goal
of a visual factory?**

© Beyond Smart Cities Private Limited . Not for Resale



**To increase the
efficiency of the
production process**

© Beyond Smart Cities Private Limited . Not for Resale



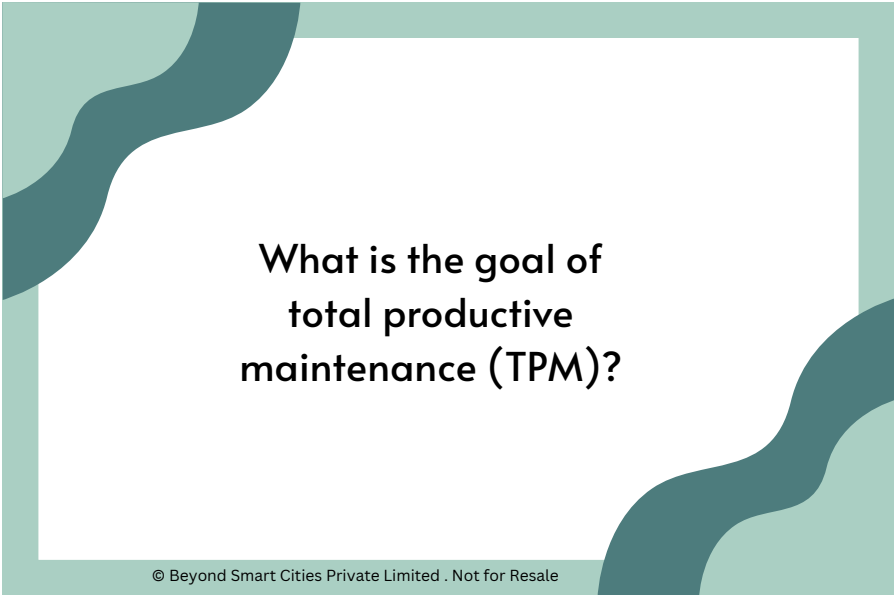
Who is responsible for
completing the project
closeout review in Six
Sigma?

© Beyond Smart Cities Private Limited . Not for Resale



The Six Sigma project
champion

© Beyond Smart Cities Private Limited . Not for Resale



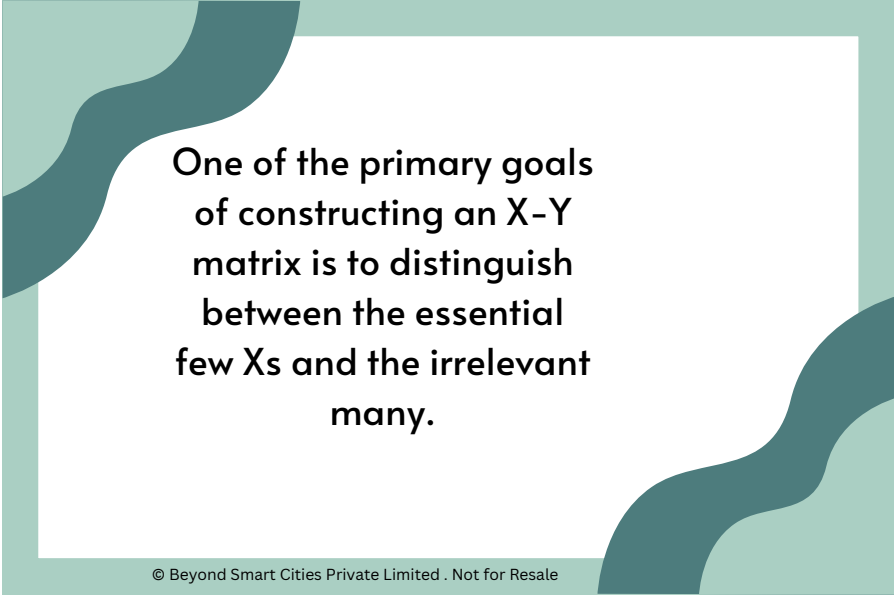
What is the goal of
total productive
maintenance (TPM)?

© Beyond Smart Cities Private Limited . Not for Resale



To improve the overall
productivity of the
organization.

© Beyond Smart Cities Private Limited . Not for Resale

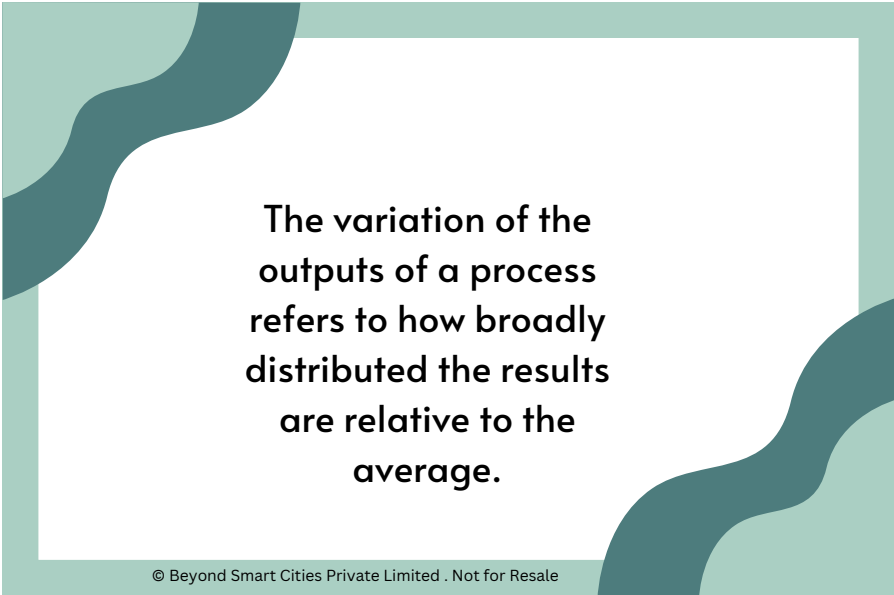


One of the primary goals
of constructing an X-Y
matrix is to distinguish
between the essential
few Xs and the irrelevant
many.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

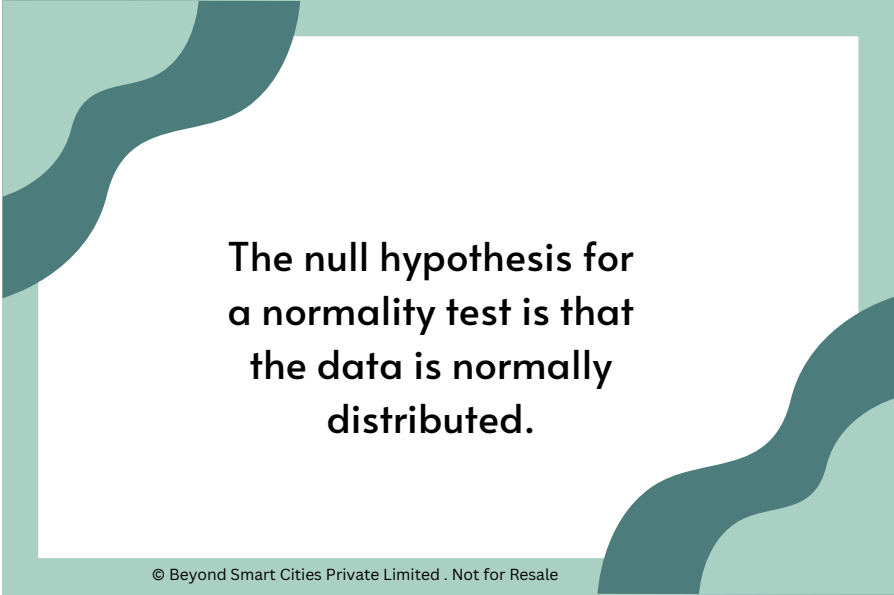


The variation of the
outputs of a process
refers to how broadly
distributed the results
are relative to the
average.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

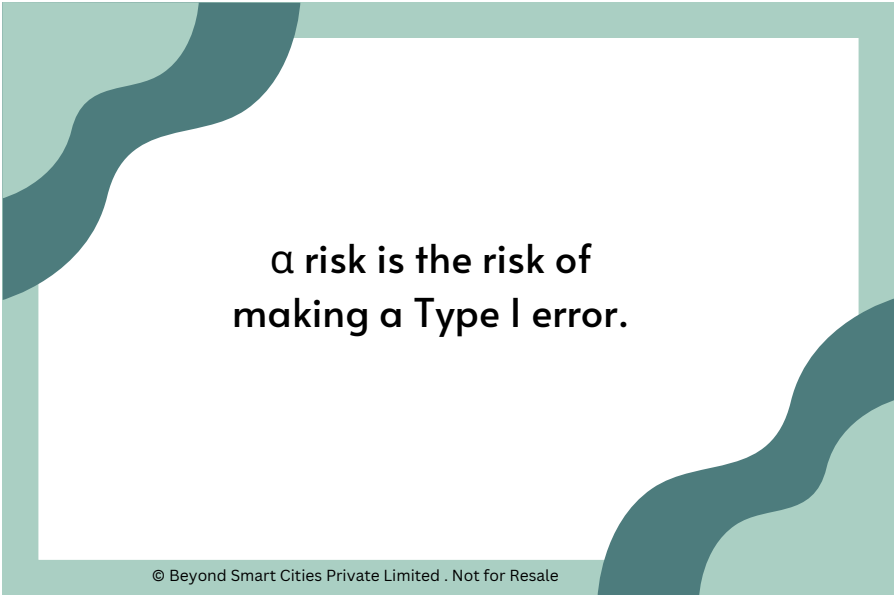


The null hypothesis for
a normality test is that
the data is normally
distributed.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale



a risk is the risk of
making a Type I error.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

Statistical inference is the process of making inferences regarding the characteristics of an unobservable population based on the characteristics of the observed sample.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

Six Sigma refers to a process whose output has at least 80% of its data points within ± 6 standard deviations from the mean.

© Beyond Smart Cities Private Limited . Not for Resale

False

© Beyond Smart Cities Private Limited . Not for Resale

In a multiple linear regression analysis, the p-values of the insignificant predictors are the ones that are smaller than the alpha level.

© Beyond Smart Cities Private Limited . Not for Resale

False

© Beyond Smart Cities Private Limited . Not for Resale

Pearson's correlation coefficient measures both the linear and non-linear relationships between two variables.

© Beyond Smart Cities Private Limited . Not for Resale

False

© Beyond Smart Cities Private Limited . Not for Resale

If $VIF = 1$, there is no multicollinearity.

© Beyond Smart Cities Private Limited . Not for Resale

True

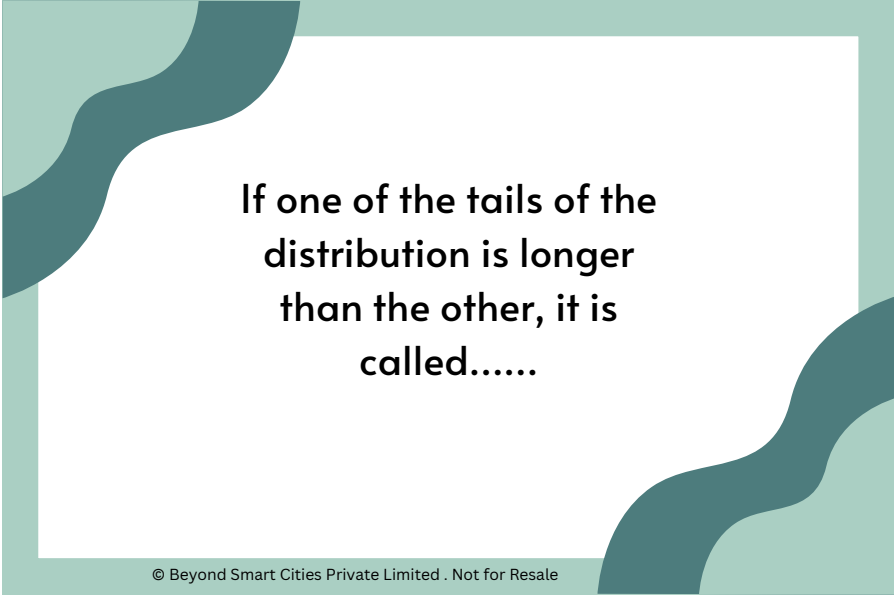
© Beyond Smart Cities Private Limited . Not for Resale

As part of a visual factory plan, Kanban cards are created and utilized to identify areas in need of cleaning and organization.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale



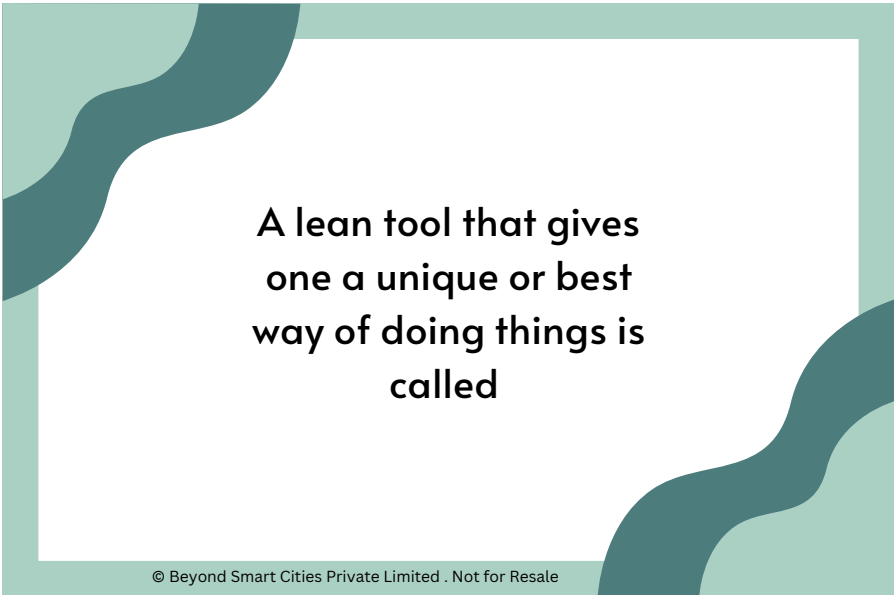
If one of the tails of the distribution is longer than the other, it is called.....

© Beyond Smart Cities Private Limited . Not for Resale



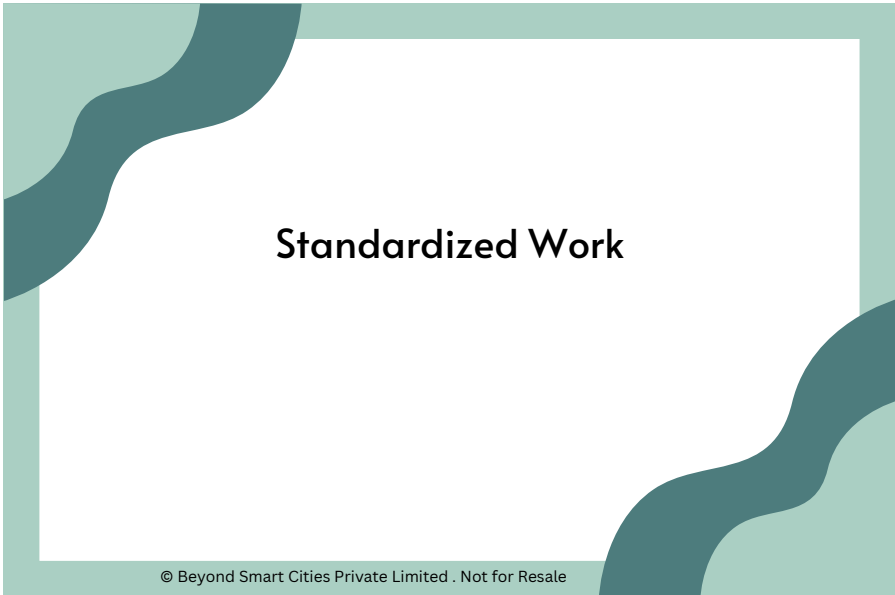
Skewed distribution

© Beyond Smart Cities Private Limited . Not for Resale



A lean tool that gives one a unique or best way of doing things is called

© Beyond Smart Cities Private Limited . Not for Resale



Standardized Work

© Beyond Smart Cities Private Limited . Not for Resale

Is the problem statement constructed correctly? "It has been observed that the quality of the product A is trending at an AVG of 78% for the last 3 months, which is way too low compared to the customer requirements."

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

Kanban is a visual signal that's used to trigger an action. In manufacturing, Kanban starts with the customer's order and follows production downstream. Kanban visualizes both the process (the workflow) and the actual work passing through that process

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

The central limit theorem (CLT) establishes that, in some situations, when independent random variables are added, their properly normalized sum tends toward a normal distribution (informally a "bell curve") even if the original variables themselves are not normally distributed.

© Beyond Smart Cities Private Limited . Not for Resale

False

© Beyond Smart Cities Private Limited . Not for Resale

The visual feedback system for the plant floor that indicates production status, alerts when assistance is needed and empowers operators to stop the production process is called...

© Beyond Smart Cities Private Limited . Not for Resale

Andon

© Beyond Smart Cities Private Limited . Not for Resale

Is the problem statement constructed correctly? "It has been observed that the quality of the product A is trending at an AVG of 78% for the last 3 months, which is way too low compared to the customer requirements."

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

As per requirement of the project, DOE performed during project for understanding cause and effect relationship between variables. There is no limitation for it, you can perform DOE more than one time as per your project need.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

What does the term
"rational subgrouping"
mean?

© Beyond Smart Cities Private Limited . Not for Resale

The method of selecting
subgroups or samples from a
process in order to obtain
data for control charts, in
order to identify differences
among the subgroups.

© Beyond Smart Cities Private Limited . Not for Resale

What is the formula for
calculating Cpk?

© Beyond Smart Cities Private Limited . Not for Resale

Minimum of [(Upper
Specification Limit -
Mean) / 3σ] and [(Mean
- Lower Specification
Limit) / 3σ]

© Beyond Smart Cities Private Limited . Not for Resale

In creating a Process Map
we use an Ellipse, to
designate

_____ for our process.

© Beyond Smart Cities Private Limited . Not for Resale

A start and stop point

© Beyond Smart Cities Private Limited . Not for Resale

The Kruskal-Wallis test is
more powerful than the
Mood's Median test, but
the Mood's Median test
is more robust to outliers.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

In the residual analysis,
the Residual vs Data
order plot shows that the
Independence
assumption satisfied
because.....

© Beyond Smart Cities Private Limited . Not for Resale

Not showing trends
either up or down and
should have
approximately the same
number of points above
and below the zero lines.

© Beyond Smart Cities Private Limited . Not for Resale

Which element of waste
best describes "the
unnecessary
accumulating of
materials/goods"?

© Beyond Smart Cities Private Limited . Not for Resale

Inventory

© Beyond Smart Cities Private Limited . Not for Resale

Root Cause Analysis (RCA) is considered to be a _____ type of accident analysis.

© Beyond Smart Cities Private Limited . Not for Resale

After finding the actual problem, the root cause analysis is used to find out the potential causes of the problem in a reactive way.

© Beyond Smart Cities Private Limited . Not for Resale

A process is called....

© Beyond Smart Cities Private Limited . Not for Resale

value-added transformation from input to output

© Beyond Smart Cities Private Limited . Not for Resale

Kaoru Ishikawa worked with other quality professionals such as W.E. Deming to advance quality management. Among his philosophies was for a company to put quality as its greatest priority and not short term profits. Ishikawa is also credited with the development of.....

© Beyond Smart Cities Private Limited . Not for Resale

cause-and-effect
diagram

© Beyond Smart Cities Private Limited . Not for Resale

Hypothesis testing is to integrate the voice of the process with the voice of the business to make data-based decisions to resolve problems.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

As a belt completes a LSS project, she creates for the process owner a control plan. The _____ portion of the control plan details the actions to be taken when the KPIs indicate they may be moving outside acceptable limits.

© Beyond Smart Cities Private Limited . Not for Resale

Response Plan

© Beyond Smart Cities Private Limited . Not for Resale

Weigh-It-Right is producing a new brand of scales that measures body fat in addition to weight. Under testing conditions, the scale shows a consistent weight of 0.25 lbs. This is an example of?

© Beyond Smart Cities Private Limited . Not for Resale

constant Bias

© Beyond Smart Cities Private Limited . Not for Resale

A business system is.....

© Beyond Smart Cities Private Limited . Not for Resale

**designed to implement
a set of processes**

© Beyond Smart Cities Private Limited . Not for Resale

**A valid Multiple Linear
Regression (MLR) is
characterized by all of
these except _____.**

© Beyond Smart Cities Private Limited . Not for Resale

**MLR is conducted
based on a deliberate
form of
experimentation**

© Beyond Smart Cities Private Limited . Not for Resale

Chi-square Test is used for frequency (count) type data and They are used to test for association (or dependency) between two classifications.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

A _____ is used to create a model of the affect on an output by the variation in two or more of the inputs.

© Beyond Smart Cities Private Limited . Not for Resale

Multiple Regression

© Beyond Smart Cities Private Limited . Not for Resale

A _____ is used primarily to track the stability of the average value of a metric of interest.

© Beyond Smart Cities Private Limited . Not for Resale

Xbar-R Chart

© Beyond Smart Cities Private Limited . Not for Resale

Why we use ANOVA for series of means, Instead of t-tests?

© Beyond Smart Cities Private Limited . Not for Resale

Alpha risk increase

© Beyond Smart Cities Private Limited . Not for Resale

The Standard deviation for the distribution of means is called.....and approaches to zero as the sample size becomes 30.

standard error

In the Control Phase of a LSS project a Belt will identify key metrics that can be monitored and analyzed to give an indication that a process may be moving towards an out of specification condition. When he applies this approach he is using _____.

Statistical Process Control

Kanban establishes a means of monitoring production, conveyance, and delivery information such that efficient flow is established. The method used by Kanban is to require a _____ before anything moves.

© Beyond Smart Cities Private Limited . Not for Resale

Signal

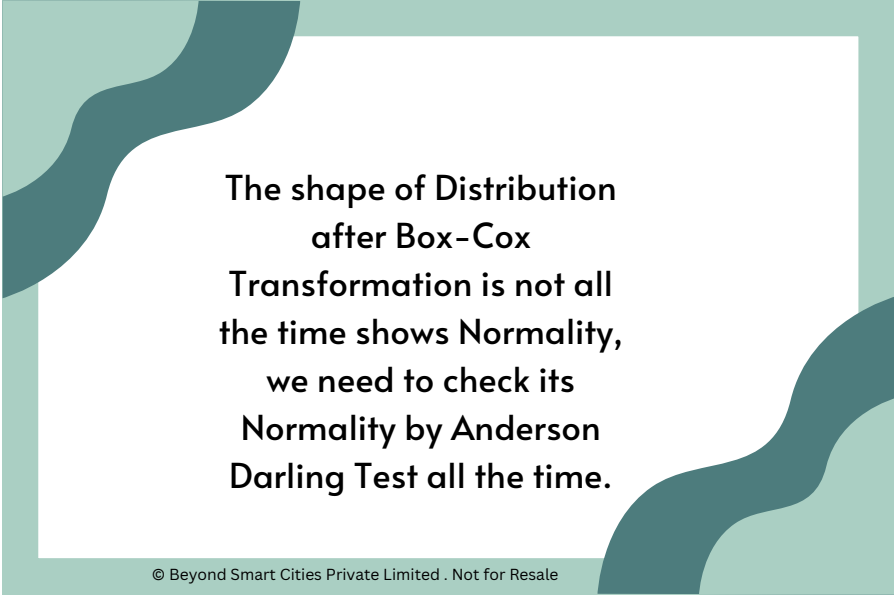
© Beyond Smart Cities Private Limited . Not for Resale

Measurement System Analysis is a procedure used to quantify the variation of the method or system used for taking measurements.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

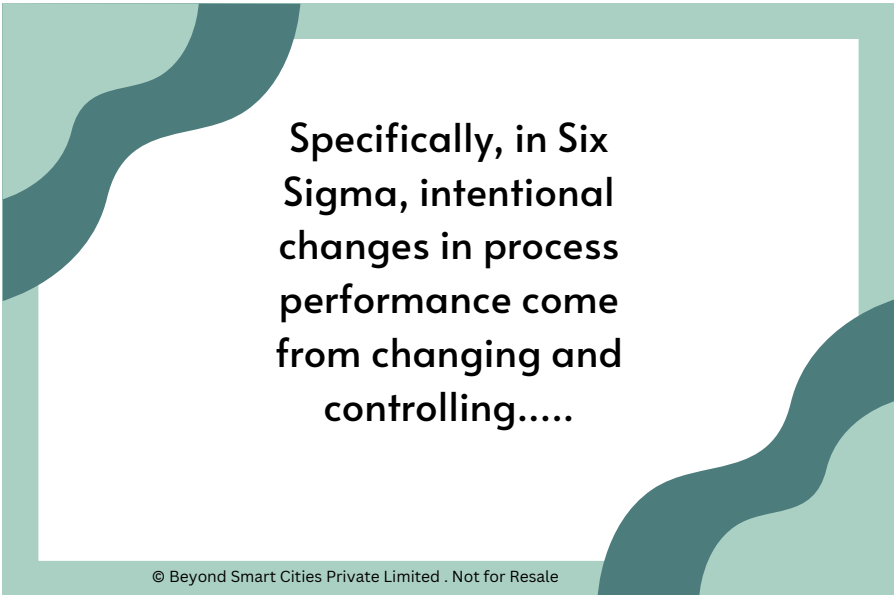


The shape of Distribution
after Box-Cox
Transformation is not all
the time shows Normality,
we need to check its
Normality by Anderson
Darling Test all the time.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale



Specifically, in Six
Sigma, intentional
changes in process
performance come
from changing and
controlling.....

© Beyond Smart Cities Private Limited . Not for Resale

Random variables

© Beyond Smart Cities Private Limited . Not for Resale

A false fire alarm in building causes unnecessary inconvenience then it is?

© Beyond Smart Cities Private Limited . Not for Resale

Alpha risk

© Beyond Smart Cities Private Limited . Not for Resale

In product development and design, it is important to document and analyze all the ways that product design would fail in real-life situations. The goal of DFMEA in Six Sigma methodology is to uncover those instances where _____ occurs.

© Beyond Smart Cities Private Limited . Not for Resale

failure mode

© Beyond Smart Cities Private Limited . Not for Resale

In both manufacturing and business processes in the long-term, the number of sigmas that will fit between a process mean and the desired specification limit will _____.

© Beyond Smart Cities Private Limited . Not for Resale

decrease

© Beyond Smart Cities Private Limited . Not for Resale

In embracing Six Sigma, what has been the principal motivating factor from the point of view of upper management?

© Beyond Smart Cities Private Limited . Not for Resale

Bottom line results

© Beyond Smart Cities Private Limited . Not for Resale

As seen in Six Sigma methodology, the role of the leader has been transformed and updated in quality management to become that of a(an)

_____.

© Beyond Smart Cities Private Limited . Not for Resale

problem-solver

© Beyond Smart Cities Private Limited . Not for Resale

The central limit theorem helps to understand the.....that we are taking and the basis for using sampling to estimate a population parameter.

© Beyond Smart Cities Private Limited . Not for Resale

Risk

© Beyond Smart Cities Private Limited . Not for Resale

When a Belt properly analyzes the results of an experiment he must examine the Residuals in expectation of finding all of the following except _____.

© Beyond Smart Cities Private Limited . Not for Resale

Residuals will represent a Linear Regression

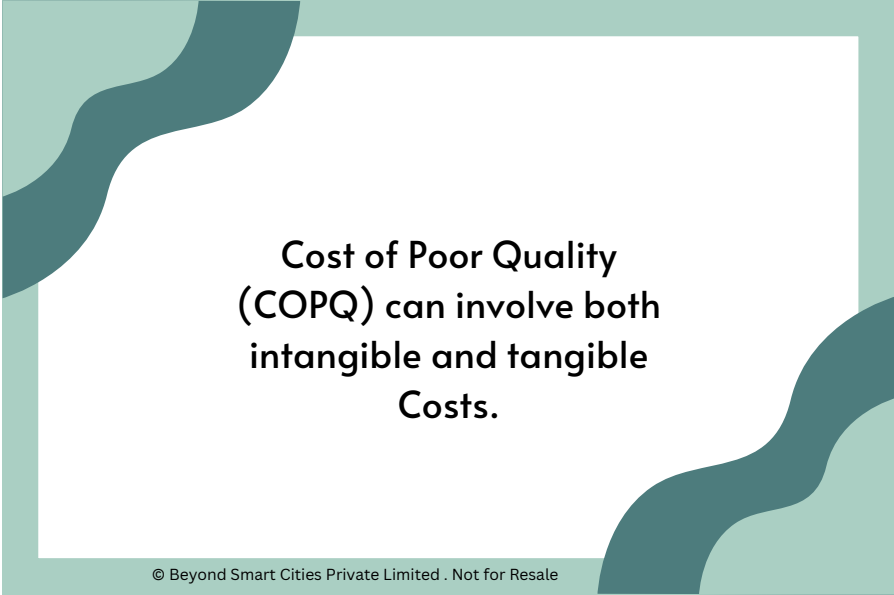
© Beyond Smart Cities Private Limited . Not for Resale

What is the difference between DMAIC and DMADV?

© Beyond Smart Cities Private Limited . Not for Resale

The basic difference between DMAIC and DMADV frameworks is, DMAIC will be used when you are trying to improve or develop a process which is already into existence. However, the DMADV method aims to redesign a problematic process or product.

© Beyond Smart Cities Private Limited . Not for Resale

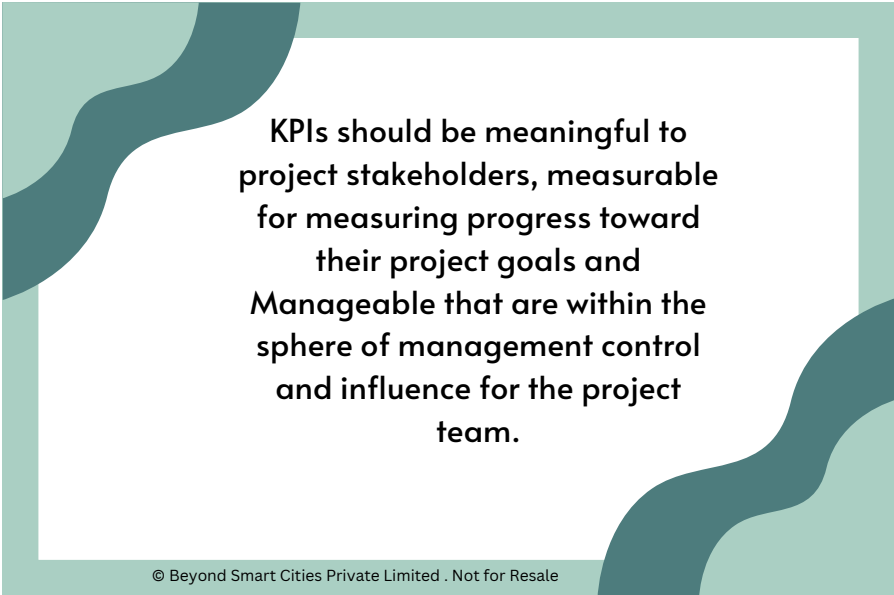


**Cost of Poor Quality
(COPQ) can involve both
intangible and tangible
Costs.**

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale



**KPIs should be meaningful to
project stakeholders, measurable
for measuring progress toward
their project goals and
Manageable that are within the
sphere of management control
and influence for the project
team.**

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

A _____ is used primarily to track the stability of the average value of a metric of interest.

© Beyond Smart Cities Private Limited . Not for Resale

Xbar-R Chart

© Beyond Smart Cities Private Limited . Not for Resale

After completing the Define and Measure phase of the six sigma project, reviews conducted to check the progress of the project and that reviews decide whether to move ahead with this project or cancel it. what that review called?

© Beyond Smart Cities Private Limited . Not for Resale

Tollgate Reviews are normally carried out at the end of every step in the DMAIC Process.

© Beyond Smart Cities Private Limited . Not for Resale

The initial project definition should include KPIs for finance, operations, and human resources. Project teams can compare KPIs to internal goals or external competitors. This method is benchmarking. Benchmarking is an improvement process in which a company compares its methods and performance to a standard, then to world-class performers or best-in-class companies.

© Beyond Smart Cities Private Limited . Not for Resale

True

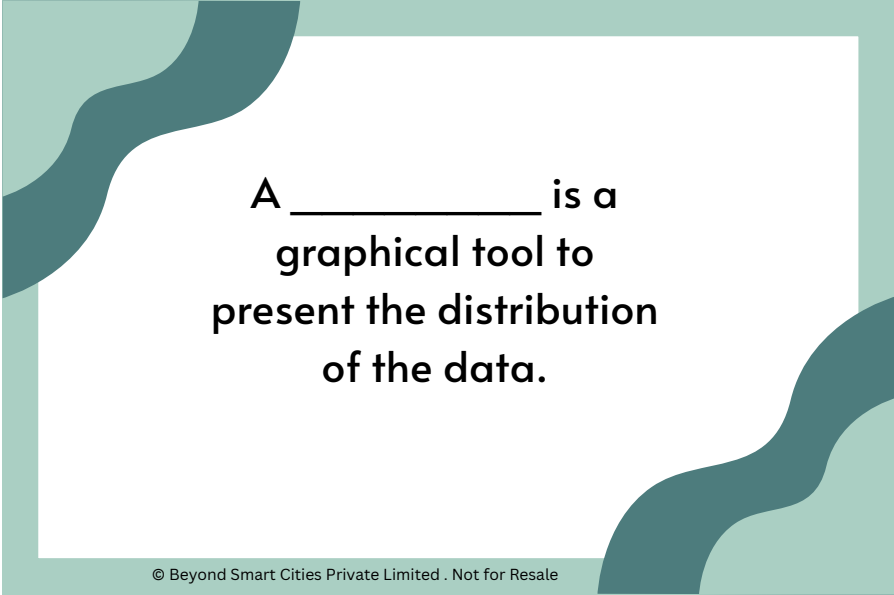
© Beyond Smart Cities Private Limited . Not for Resale

Cp considers the within-subgroup standard deviation and Pp considers the total standard deviation from the sample data.

© Beyond Smart Cities Private Limited . Not for Resale

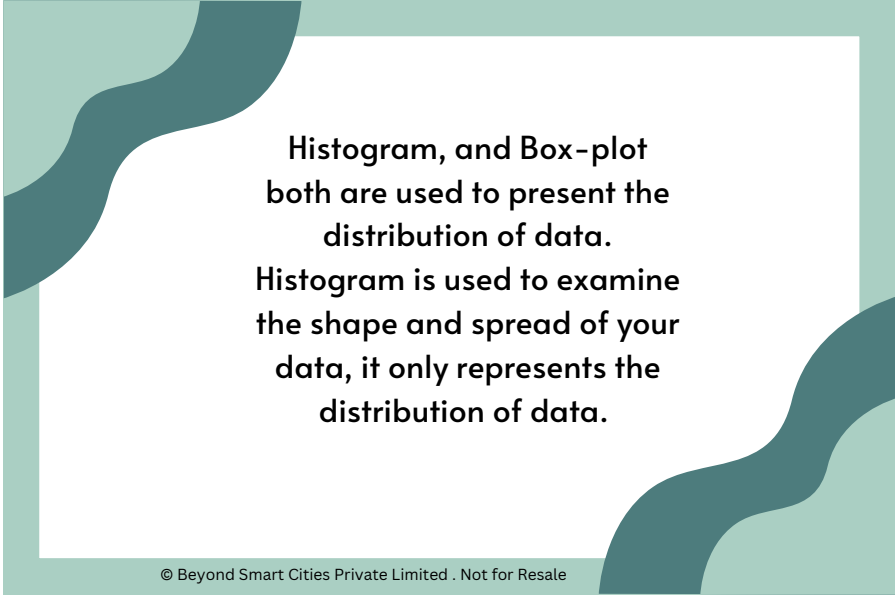
True

© Beyond Smart Cities Private Limited . Not for Resale



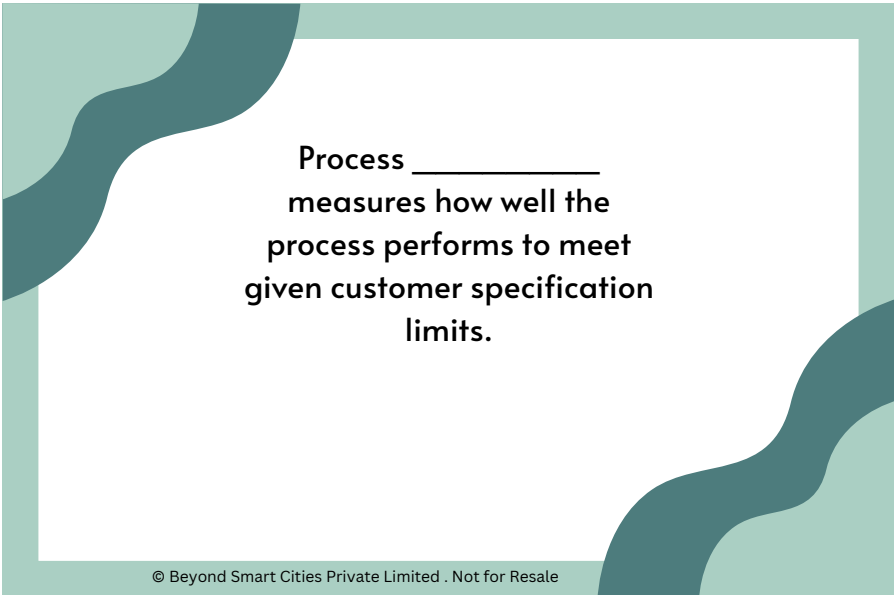
A _____ is a graphical tool to present the distribution of the data.

© Beyond Smart Cities Private Limited . Not for Resale



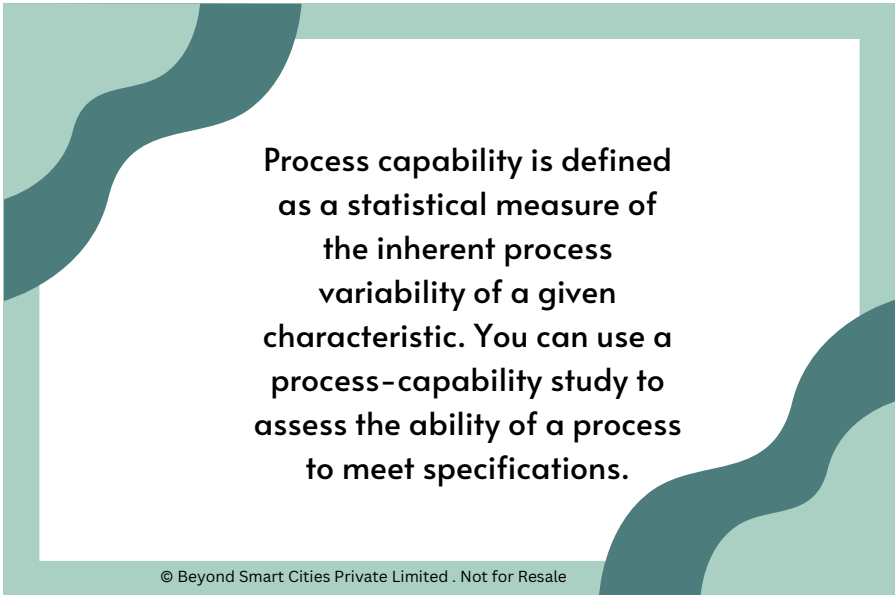
Histogram, and Box-plot both are used to present the distribution of data. Histogram is used to examine the shape and spread of your data, it only represents the distribution of data.

© Beyond Smart Cities Private Limited . Not for Resale



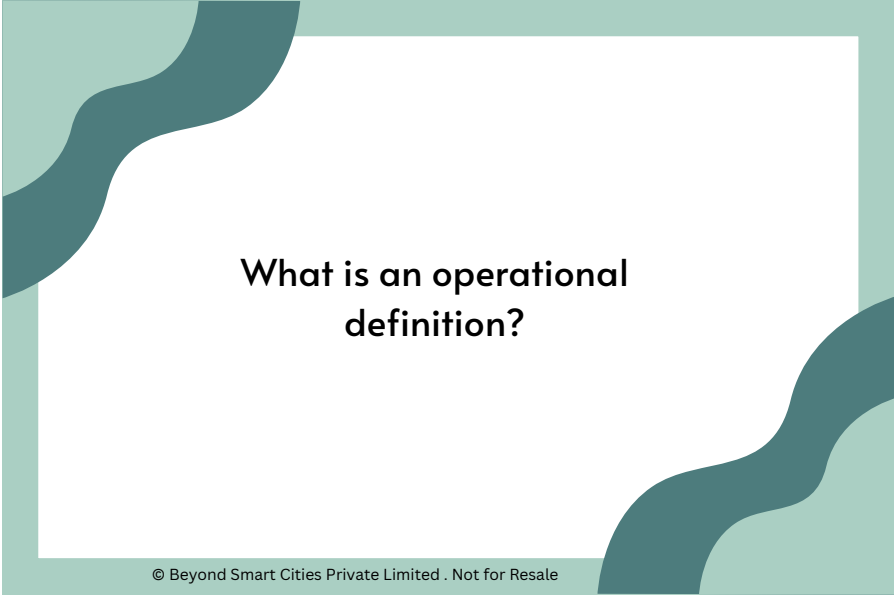
Process _____ measures how well the process performs to meet given customer specification limits.

© Beyond Smart Cities Private Limited . Not for Resale



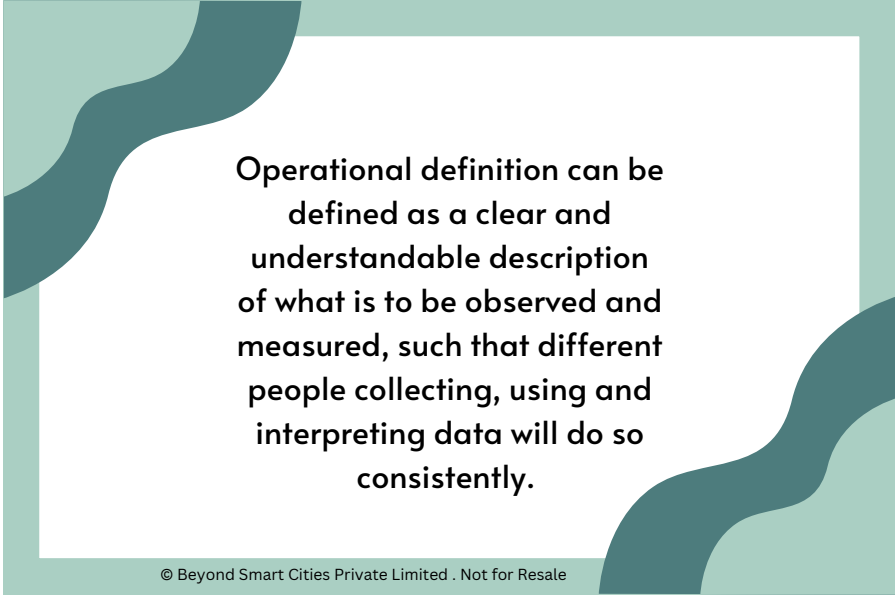
Process capability is defined as a statistical measure of the inherent process variability of a given characteristic. You can use a process-capability study to assess the ability of a process to meet specifications.

© Beyond Smart Cities Private Limited . Not for Resale



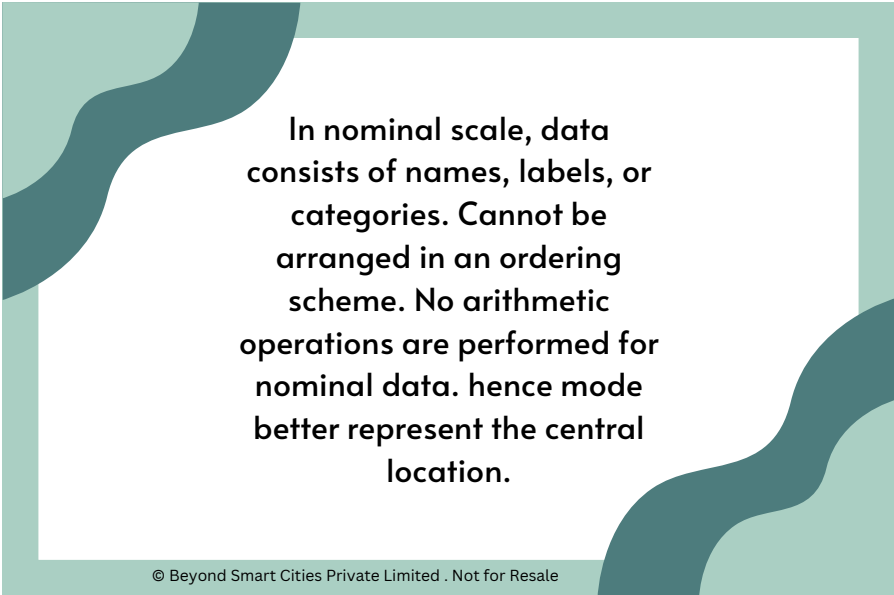
What is an operational definition?

© Beyond Smart Cities Private Limited . Not for Resale



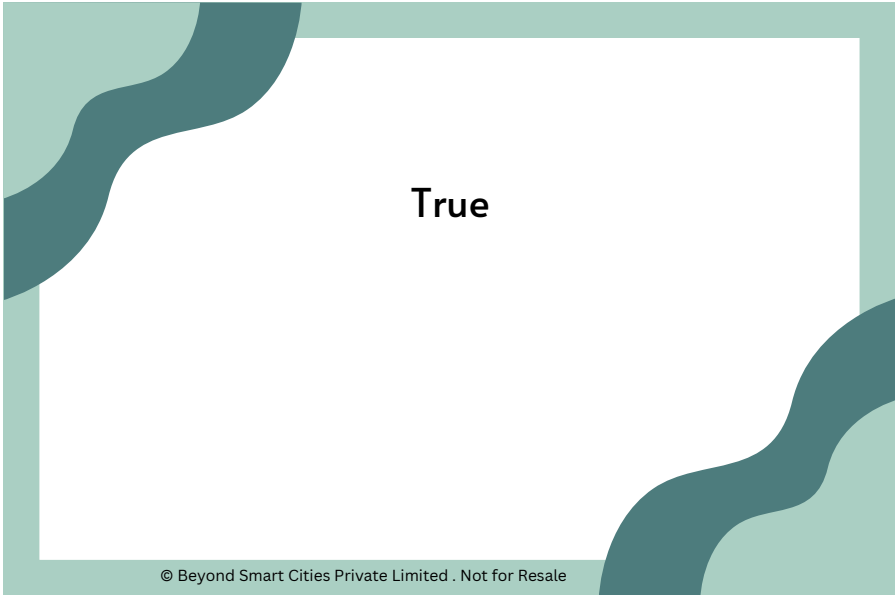
Operational definition can be defined as a clear and understandable description of what is to be observed and measured, such that different people collecting, using and interpreting data will do so consistently.

© Beyond Smart Cities Private Limited . Not for Resale



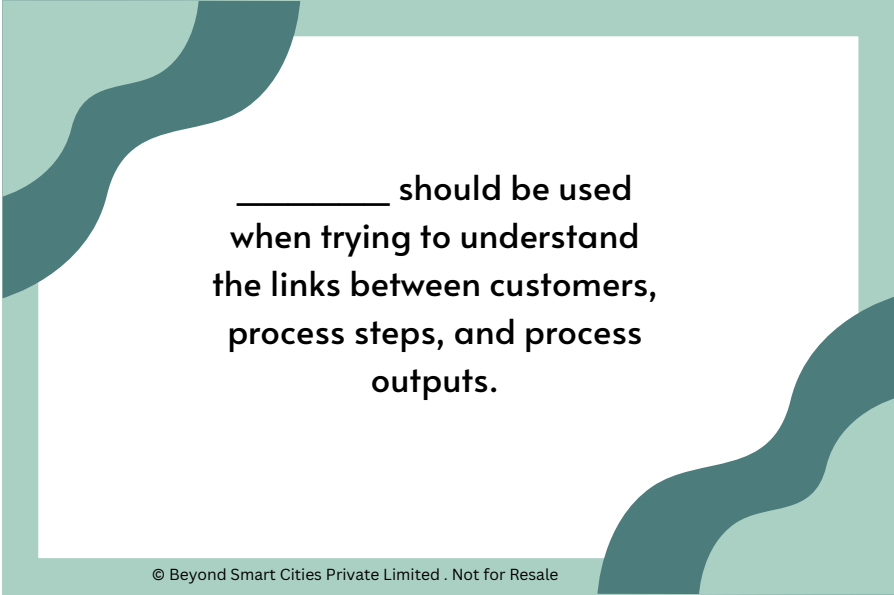
In nominal scale, data consists of names, labels, or categories. Cannot be arranged in an ordering scheme. No arithmetic operations are performed for nominal data. hence mode better represent the central location.

© Beyond Smart Cities Private Limited . Not for Resale



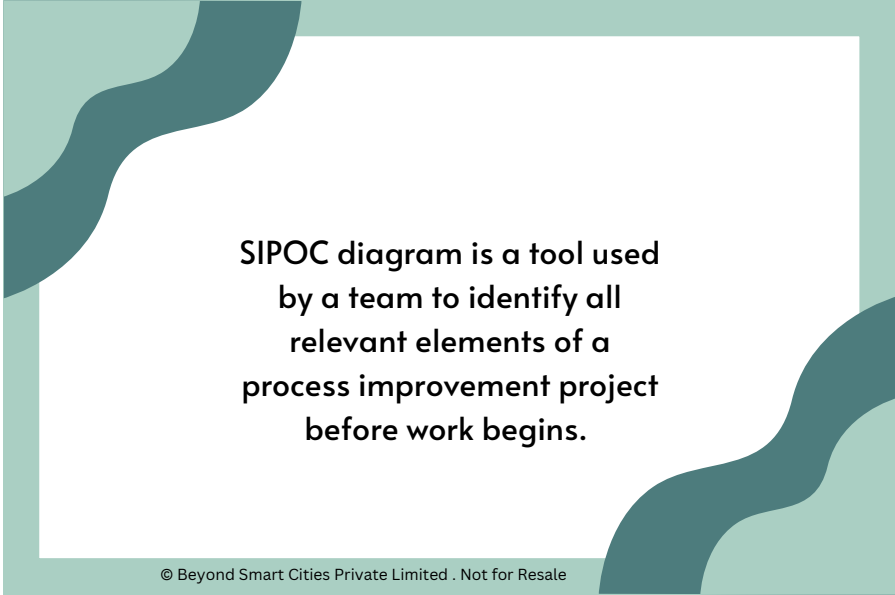
True

© Beyond Smart Cities Private Limited . Not for Resale



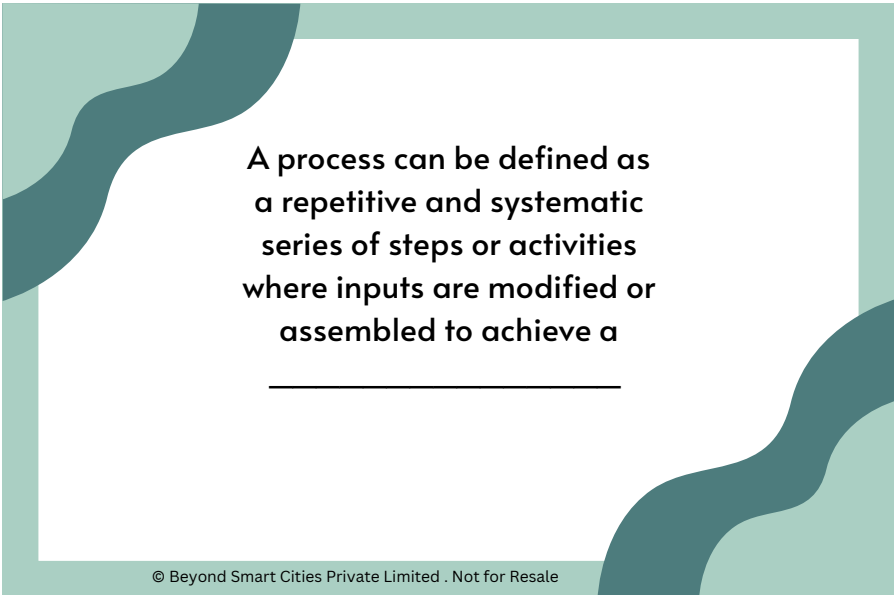
_____ should be used
when trying to understand
the links between customers,
process steps, and process
outputs.

© Beyond Smart Cities Private Limited . Not for Resale



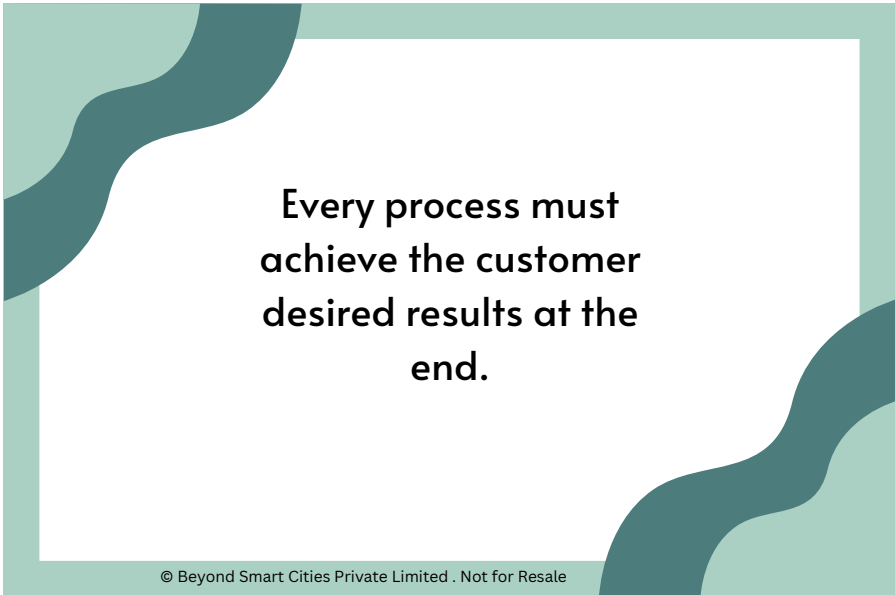
SIPOC diagram is a tool used
by a team to identify all
relevant elements of a
process improvement project
before work begins.

© Beyond Smart Cities Private Limited . Not for Resale



A process can be defined as
a repetitive and systematic
series of steps or activities
where inputs are modified or
assembled to achieve a

© Beyond Smart Cities Private Limited . Not for Resale



Every process must
achieve the customer
desired results at the
end.

© Beyond Smart Cities Private Limited . Not for Resale

Conducting a viable
Capability Analysis using
Attribute Data one must
obtain a fairly large sample
set to be statistically sound.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

When a Belt adds
information to a Process Map
that defines which
department is responsible for
the various activities
displayed, it could be
referred to as

_____.

© Beyond Smart Cities Private Limited . Not for Resale

Swim Lanes or cross-
functional flow are type of
chart that matches activities
according to the party (a
person or a group of persons)
responsible for those
activities.

© Beyond Smart Cities Private Limited . Not for Resale

The initial project definition should include KPIs for finance, operations, and human resources. Project teams can compare KPIs to internal goals or external competitors. This method is benchmarking. Benchmarking is an improvement process in which a company compares its methods and performance to a standard, then to world-class performers or best-in-class companies.

© Beyond Smart Cities Private Limited . Not for Resale

True

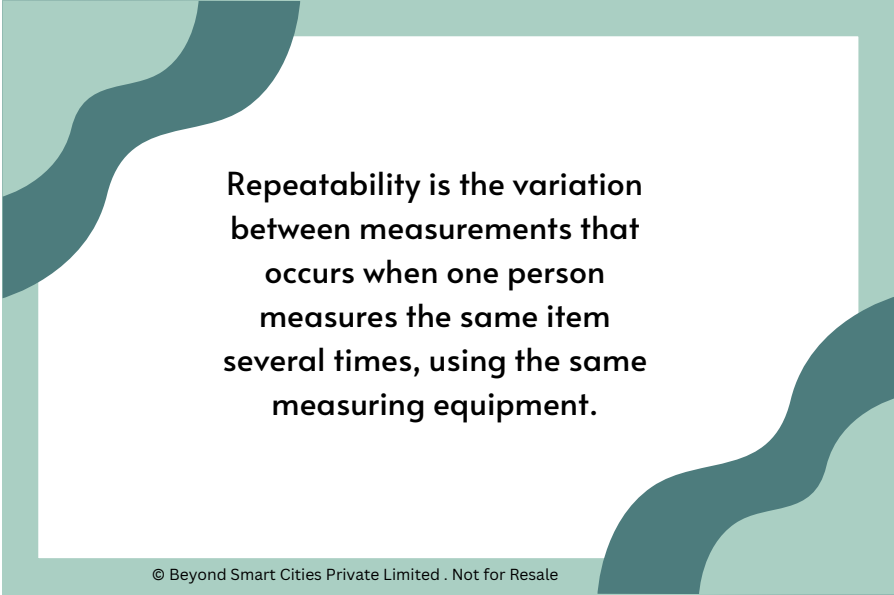
© Beyond Smart Cities Private Limited . Not for Resale

In fishbone diagram, we find causes of problem based on 6 categories called as 6M approach. I.e. Material, Machines, Method, Measurement, Manpower, Mothernature.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

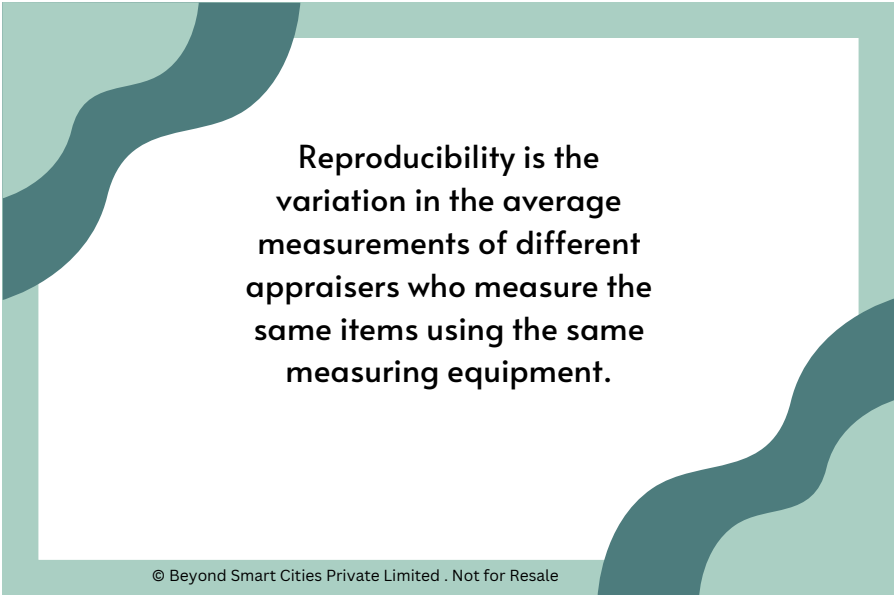


Repeatability is the variation between measurements that occurs when one person measures the same item several times, using the same measuring equipment.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale



Reproducibility is the variation in the average measurements of different appraisers who measure the same items using the same measuring equipment.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

(NDC) The no of distinct categories in MSA, tells you how many separate groups of parts the measurement system is able to distinguish.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

Cp considers the within-subgroup standard deviation and Pp considers the total standard deviation from the sample data.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

"The data can be arranged in some order and for which differences in data values are meaningful. This data can be arranged in ordering scheme and differences can be interrupted" the types of scale is

© Beyond Smart Cities Private Limited . Not for Resale

Interval scale ,where the data can be arranged in a order and the differences between the values are meaningful but not necessarily a zero point.

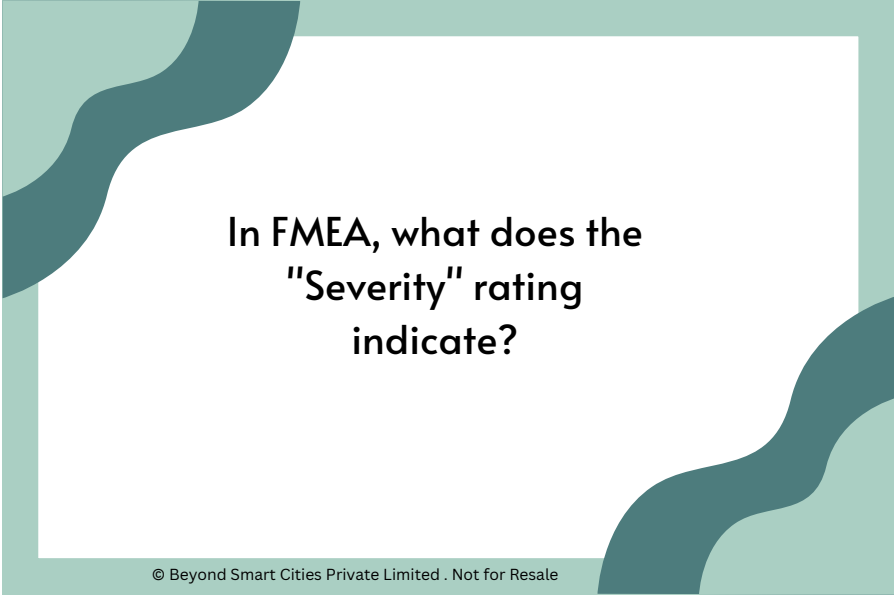
© Beyond Smart Cities Private Limited . Not for Resale

In a good measurement system, the largest component of variation is part-to-part variation than Gage R&R. If a large amount of variation belongs to Gage R&R then corrective action is needed.

© Beyond Smart Cities Private Limited . Not for Resale

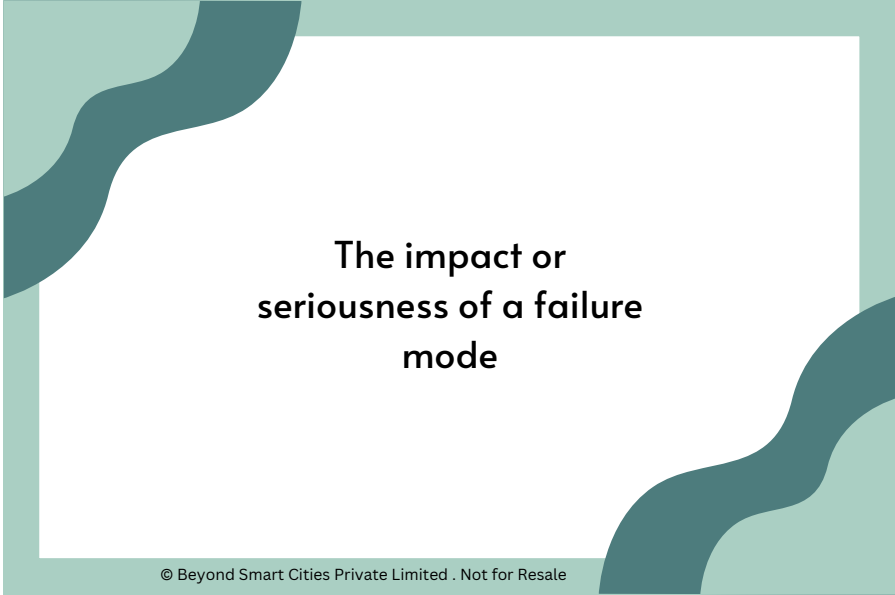
True

© Beyond Smart Cities Private Limited . Not for Resale



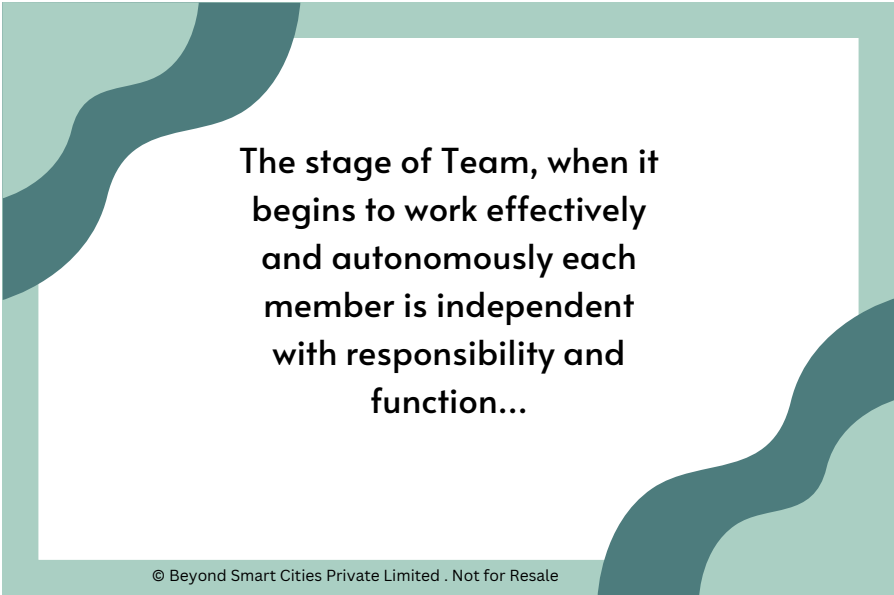
In FMEA, what does the
"Severity" rating
indicate?

© Beyond Smart Cities Private Limited . Not for Resale



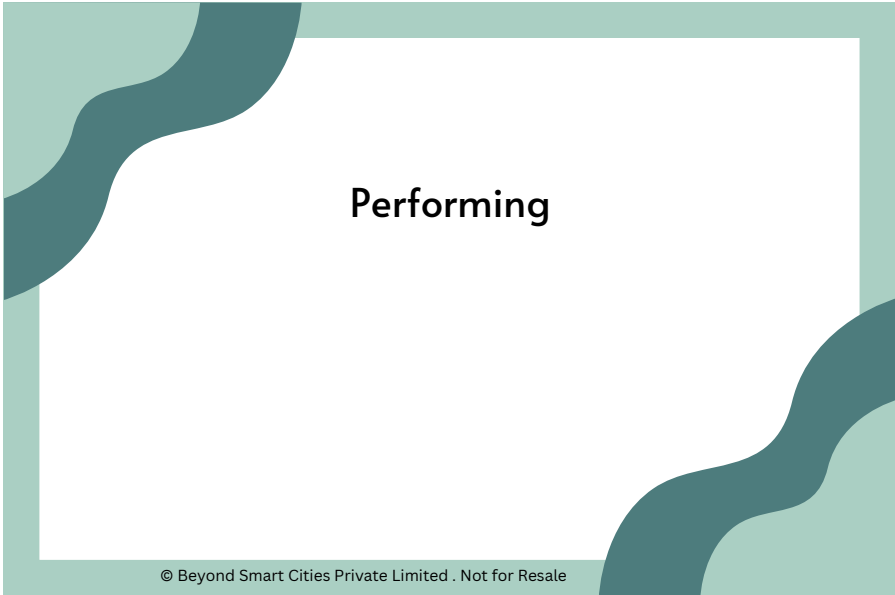
The impact or
seriousness of a failure
mode

© Beyond Smart Cities Private Limited . Not for Resale



The stage of Team, when it
begins to work effectively
and autonomously each
member is independent
with responsibility and
function...

© Beyond Smart Cities Private Limited . Not for Resale



Performing

© Beyond Smart Cities Private Limited . Not for Resale

A controlled independent variable whose levels are set by the experimenter is called.....

© Beyond Smart Cities Private Limited . Not for Resale

The dependent variable, in the context of DOE, is called the response, and the independent variables are called factors, whose levels are set by experimenter.

© Beyond Smart Cities Private Limited . Not for Resale

Mistake Proofing is about adding techniques to prevent defects and detect defects as soon as possible, if one does occur and create devices allowing 100% defect free steps 100% of the time. Poka-Yoke is often used as a synonymous term but its meaning is to eliminate product defects by preventing human errors.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

The use of station warning lights, tool boards and jidoka devices in the application of Lean accomplish which of these principles?

© Beyond Smart Cities Private Limited . Not for Resale

A visual factory uses a tools like warning light or Andon lights , tool board or jidoka devices (Jidoka involves the automatic detection of errors or defects during production

© Beyond Smart Cities Private Limited . Not for Resale

A pull system is a Lean technique for reducing the waste of any production process. Applying a pull system allows you to start new work only when there is a customer demand for it. This gives you the opportunity to reduce overhead and optimize storage costs.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

The essence of Lean is to concentrate effort on removing waste while improving process flow to achieve speed and agility at a lower cost.

© Beyond Smart Cities Private Limited . Not for Resale

True

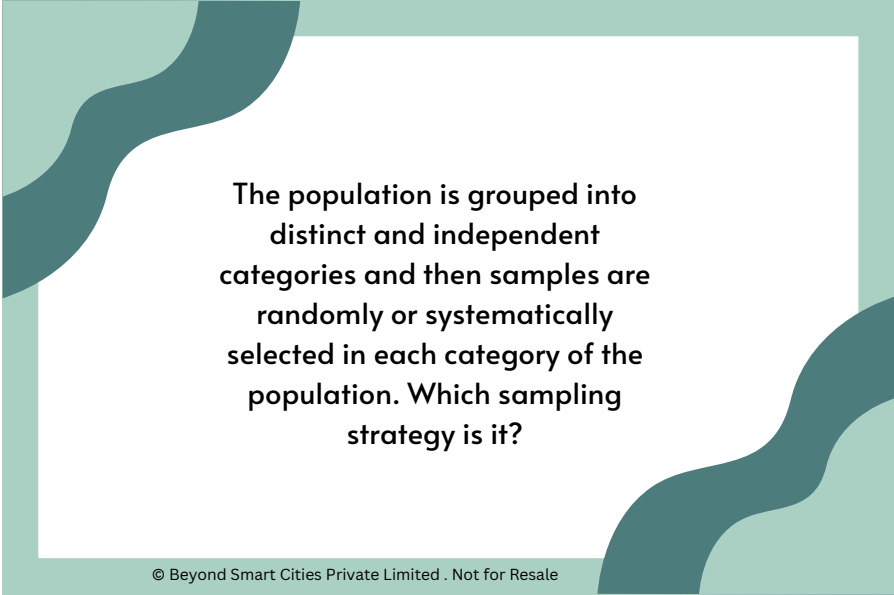
© Beyond Smart Cities Private Limited . Not for Resale

Both are used for tracking defectives. P chart is a plot of proportion defective or fraction defective in the order of production. The sample size (n) may or may not vary from sample to sample. NP chart is a plot of number of defective pieces in a fixed sample size in the order of production.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale



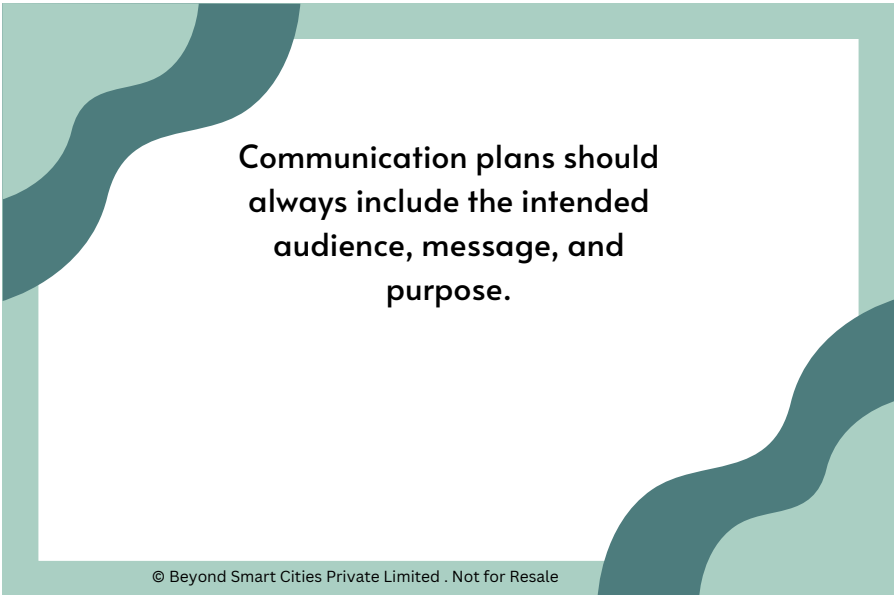
The population is grouped into distinct and independent categories and then samples are randomly or systematically selected in each category of the population. Which sampling strategy is it?

© Beyond Smart Cities Private Limited . Not for Resale



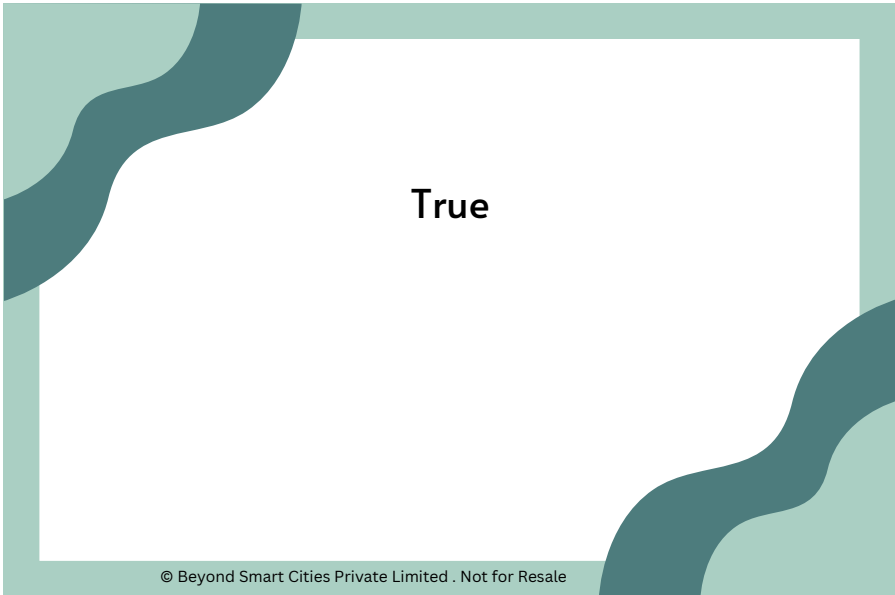
With stratified sampling,

© Beyond Smart Cities Private Limited . Not for Resale



Communication plans should always include the intended audience, message, and purpose.

© Beyond Smart Cities Private Limited . Not for Resale



True

© Beyond Smart Cities Private Limited . Not for Resale

The individuals chart in an
IMR control chart is valid
only if the moving range
chart is in control.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

If a process is stable, the
future performance of
that process is
predictable within
certain limits.

© Beyond Smart Cities Private Limited . Not for Resale

True

© Beyond Smart Cities Private Limited . Not for Resale

What is COW?

© Beyond Smart Cities Private Limited . Not for Resale

Cost of Waste.
Note: Measuring & understanding the cost of poor quality.

© Beyond Smart Cities Private Limited . Not for Resale

**What is difference
between variable &
attribute data?**

© Beyond Smart Cities Private Limited . Not for Resale

- Variable data is continuous (measurement data) such as; time, temperature, call volume, speed, etc).
- Attribute data records just the presence or absence of something such as; good/bad, pass/fail, yes/no, female/male.

© Beyond Smart Cities Private Limited . Not for Resale

What are some metrics to describe quality for VARIABLE data?

© Beyond Smart Cities Private Limited . Not for Resale

- CP = Capability Index (Potential).
- CPK = Capability Index (Actual).
 - Sigma Level.

Note: Cpk-A six sigma process will have a Cpk value of 1.5 or larger.

- CP-A six sigma process will have a Cp value of 2 or larger.

© Beyond Smart Cities Private Limited . Not for Resale

How many ERRORS allowed to be called a Six Sigma?

© Beyond Smart Cities Private Limited . Not for Resale

3.4 defects per million of opportunities.

Note: squeeze out all the variability.

© Beyond Smart Cities Private Limited . Not for Resale

What is a value stream?

© Beyond Smart Cities Private Limited . Not for Resale

Is the entire set of activities performed to transform the products and services in what is required by the customer/member.

- Includes value added & non-value steps.
- Looks at both product flow and information flow.

© Beyond Smart Cities Private Limited . Not for Resale

What is Lean Six Sigma IMPACT ZONES or three legged stool?

© Beyond Smart Cities Private Limited . Not for Resale

- Member Value (Better, Faster, Lower Cost).
- Company Culture (Values, Leadership, The Way We Work).
- Process Capability (Tools & Methodology).

© Beyond Smart Cities Private Limited . Not for Resale

What are the 5 elements of
the Lean Six Sigma
Roadmap?

© Beyond Smart Cities Private Limited . Not for Resale

DMAIC.
- Define.
- Measure.
- Anayze.
- Improve.
- Control.

© Beyond Smart Cities Private Limited . Not for Resale

What is knowledge based
management (KBM)?

© Beyond Smart Cities Private Limited . Not for Resale

- Questions managers need
to ANSWER.
- Questions managers need
to ASK.
- Tool & Techniques to
answer questions & improve
the scorecard

© Beyond Smart Cities Private Limited . Not for Resale

What is IPO diagram?

© Beyond Smart Cities Private Limited . Not for Resale

IPO = Input, Process, Output.
O's are measurable.

- Graphical representation of
a process, showing the inputs
& outputs....good
communication tool.

Note: for test "DO PROCESS
FIRST".

© Beyond Smart Cities Private Limited . Not for Resale

What is QFD or HOQ?

© Beyond Smart Cities Private Limited . Not for Resale

- QFD = Quality Function
Deployment. OR

- HOQ = House of Quality.

Note: Tools to understand the
customer.

- Questionnaires.

- Focus Groups.

- Interviews.

- Historical data.

- Expert Studies.

© Beyond Smart Cities Private Limited . Not for Resale

What is Measure of Quality?

© Beyond Smart Cities Private Limited . Not for Resale

The yield of a particular process or step is often used as a metric for accessing quality.

© Beyond Smart Cities Private Limited . Not for Resale

What things to keep in mind when reviewing your IPO/SIPOC diagram.

© Beyond Smart Cities Private Limited . Not for Resale

- Are all of the critical to customer outputs included.
- Have you ensured that the outputs are measurable.
- Have you considered measures related to better, faster, & lower cost.
- Have you indicated your primary project measure(s) of the IPO/SIPOC diagram.

© Beyond Smart Cities Private Limited . Not for Resale



www.beyondsmartcities.in