6M Model

Introduction

The 6Ms in Cause-and-Effect Analysis - also known as Fishbone Diagram (due to its appearance) or Ishikawa Diagram (named after its developer Kaoru Ishikawa) - is a multi-facet approach to solve every organization's or industry's problem by subjecting it to thorough and balanced considerations. It is a mnemonic tool used primarily when it comes to problem-solving or decision making. The Cause-and-Effect diagram, also known as Fishbone Diagram, proves extremely beneficial when exploring or dissecting any production or industrial operations problems. It is a problem-solving technique that identifies the likely causes of a challenge and undertakes to fix it. The 6M method encourages people to explore problems in multiple ways and it's based on the following parameters: Manpower, Method, Machine, Material, Milieu (mother nature) and Measurement.
So, the 6M Ishikawa Diagram plays an important role here as it helps separate the causes and improvement plans into categories and even rank them in terms of importance.

Definition

The 6 Ms are a mnemonic tool used primarily during the creation of a Cause-and-Effect diagram.
The 6 Ms are:
Machines Methods, Materials, Mother Nature, Manpower (People Power) and Measurements.

How to use it

Capture and bin the issues (causes) under the 6M categories. Once documented, place the causes according to category on a cause-and-effect diagram. Develop improvement plans starting with the most significant issues first.
When we think in terms of categories, it helps us separate and then rank the specific causes for various effects and problems.

Details

6M method is based on the following parameters:
Manpower: Revolves around the operational and functional labor of people involved in the industry's processes. This parameter checks on whether the personnel's technical proficiency and experience are up to standard. Whether the staff has quality consciousness, sense of responsibility and discipline are answered by this 6M method aspect.
Machinery: Touches on machines, tools, and other facilities together with their underlying support systems. Is the machinery employed for production capable of delivering the intended output? Are machines and tools well-managed to achieve excellence?
Material: Raw materials, components, and consumables management to satisfy production and service delivery. This parameter checks on the correct specification of materials, their proper storage, labeling, and subsequent usage.
Method: Production and support processes and their application or contribution to service delivery. Does any of the methods relied on in your processes have too many steps and integral activities that don't add value to the whole system?
Mother-nature: Considers both controllable and unpredictable environmental influences in the operation processes. Weather and other natural events fall into this category. It makes it easy to take note of the many environmental factors that are manageable under ardent considerations and how to handle those that are not.
Measurement: Inspection, evaluation, and other physical measures – whether manual or automatic. Staying keen about calibration errors and other measurement challenges to avoid inconsistencies becomes important under this parameter.

EXAMPLE

- Method: Specific regulations or policies causing slowdowns in processes.
- Mother Nature (Environment): There is too much moisture in the environment; Temperatures are too cold affecting other production processes
- Manpower (People Power): Training new people adequately; Ensuring training is consistent.
- Measurement: The equipment is regularly calibrated and maintained to avoid errors in calculations or contaminations that result in false readings.
- Machine: Maintenance issues with tools used and the number available for operations.
- Materials: Any issues are getting raw materials from suppliers or transport challenges recorded problems with the quality of supplies.