



# FLYING HIGH



with Eagle Wing Education and Training

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## A Lesson from Lean Ishikawa Diagrams

Ishikawa diagrams (also called fishbone diagrams or cause-and-effect diagrams) are diagrams that show the causes of a certain event. One of the cornerstones of Lean is discovering the root causes of problems and dealing with them, instead of fixing the symptoms only. Ishikawa diagrams are a very simple, visual way of exploring the different causes in a non-linear fashion.

In an ishikawa diagram the causes are usually grouped into major categories to identify these sources of variation. The categories typically include:

- People: Anyone involved with the process
- Methods: How the process is performed and the specific requirements for doing it, such as policies, procedures, rules, regulations and laws
- Machines: Any equipment, computers, tools etc. required to accomplish the job
- Materials: Raw materials, parts, pens, paper, etc. used to produce the final product
- Measurements: Data generated from the process that are used to evaluate its quality
- Environment: The conditions, such as location, time, temperature, and culture in which the process operates

Tools such as the Ishikawa diagram can be extremely useful in presenting all the data relating to an issue for evaluation, and not just for solving problems. Mazda Motors famously used an Ishikawa diagram in the development of the Miata sports car, where the required result was "Jinba Ittai" or "Horse and Rider as One". The main causes included such aspects as "touch" and "braking" with the lesser causes including highly granular factors such as "50/50 weight distribution" and "able to rest elbow on top of driver's door". Every factor identified in the diagram was included in the final design.



## Quotable Quotes

"It is well known that "problem avoidance" is an important part of problem solving. Instead of solving the problem you go upstream and alter the system so that the problem does not occur in the first place."

*Edward de Bono*

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