

Genichi Taguchi and His Contributions to Quality Control

Genichi Taguchi is a name which will forever be associated with quality control. His pioneering thoughts and subsequent work changed the field forever. His focus was into greater customer satisfaction by looking into the loss of quality. He challenged the prevalent ideas of production where it was okay if a defect was within a tolerance limit. His methods famously known as the Taguchi Methods have left a lasting imprint in the field of quality control.

Early Life, Work, and Contributions

Genichi Taguchi was born in Japan around 1924 and was a student of textile engineering at Kiryu University till the breakout of the second world war. This war was instrumental in influencing the young man's mind with respect to quality post-production. Certain armaments in the Japanese Navy were notorious for exploding post-production and Taguchi found himself right in the middle of it during the war. He served in the Japanese Navy during the second world war and worked with the navigations department until the end of the war. After the war he found himself working at the public health and welfare department where he was heavily influenced by Matosaburo Masuyama, a famed statistician.

The manufacturing industry of Japan had very little resources to work with after the war. Taguchi's work was centered around trying to reduce spiraling costs and saving the industry. He realized that most of the aberrations in cost were due to certain external factors which he termed as noise in a production process. Even if the production was within parameters and tolerance levels, the quality would decline owing to these noises." His idea to isolate these noises at the source and reduce variations in quality is by far the most important statistical work done in the field of quality control.

Taguchi's Contributions to Quality Control

Genichi Taguchi's additions to the field of quality control were not constrained to just the process of production. He had keen insights into the perception of a customer towards a particular product and how it varies with variabilities in quality as time passes. His equations to quantify and calculate the same are famously called the Loss Function and is still used by manufacturing houses today.

Another major contribution of Taguchi was to isolate and remove factors which affect the variability of a product. These activities were often ignored owing to the associated cost and time needed. Taguchi's brilliance lay in the simplistic and cost-effective way he designed arrays to isolate and remove these factors.

1. Reducing loss Taguchi was the first one to actually quantify customer experience and define how it changed with changes in product quality. These equations would give insights into the loss in revenue and the relationship it had with customer experience.
2. Reducing product defects – In all production processes there are factors which either influence product quality in a direct or indirect manner. Though the direct influencers are simple to catch and control, the challenge lay in doing the same for the indirect variables. Even if it were possible it would be a very expensive process and not practical when scaled up. Taguchi came up with certain arrays called orthogonal arrays which would pinpoint the indirect variables and also keep costs under control.

In addition to these famous works, Taguchi also imparted his experience in manufacturing houses across various types of products. Later in his life he even helped a candy company retain the quality of their products by applying the same principles and equations he leveraged to improve the quality of electronic equipment and daily household items.

Throughout his life Taguchi immersed himself to improve customer experience and cut costs at the same time. He was one of the pioneers of quality control and was the first to bring in mathematical equations and statistical methods to quantify the relationship between the experience of a customer and profits of a company.

Conclusion

In conclusion, Genichi Taguchi contributed tremendously to the advancement of statistics in quality control. Even after all these years his achievements and insights in the field continue to influence new students of the subject and will continue to do so for a great many years.