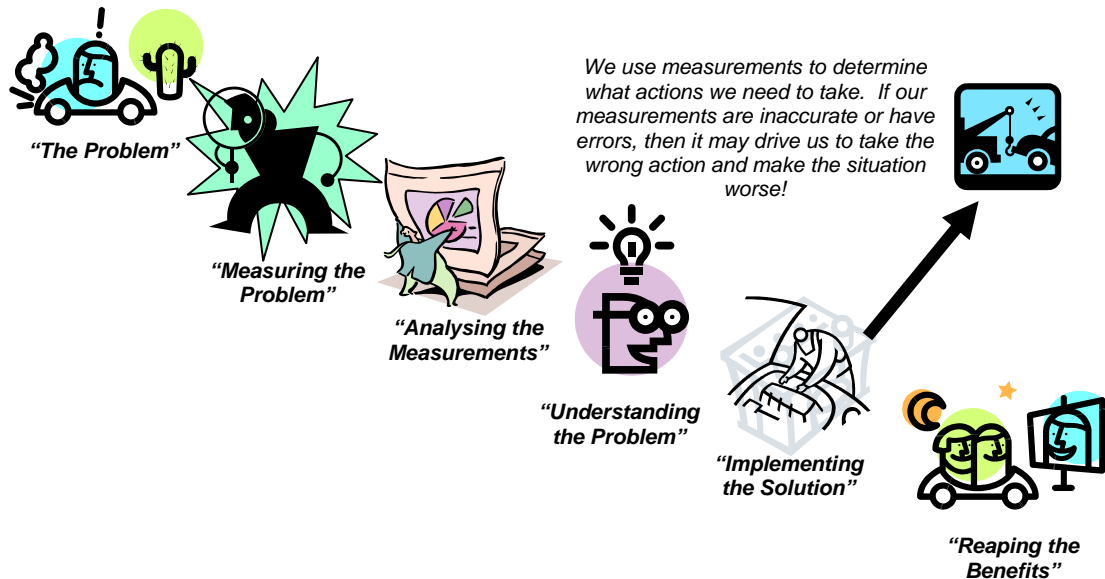


Can we trust the data?

by Andy Brown, MBB, Six Sigma Group

As all organisations strive to improve their processes they will find the foundations of success are driven by the acquisition of good reliable data that leads to the implementation of appropriate improvement actions.



How do we know that what we observe accurately reflects what is actually happening in the process? A measurement system will not reveal the type of distortion, inaccuracy or errors it is transmitting to our data. We use **MEASUREMENT SYSTEM ANALYSIS** to actively force the measurement system to reveal its hidden effects.

One of the most dramatic and costly examples of measurement system error occurred with NASA during their development of the Hubble Space Telescope. They spent almost half a billion dollars building it and getting it up into space and it didn't work! The pictures were fuzzy! They discovered the problem was to do with the manufacture of the main lens. It weighed about 700kg and was 8ft in diameter and with any optical device the surface profile needed to be accurate to micron precision. The company that manufactured the lens used a sophisticated grinding machine with a built in measurement device. The device would measure the surface profile, analyse the measurements and determine what corrective grinding was required. This process worked fine but no-one had spotted a 3mm offset in the calibration of the device. Everybody trusted the numbers and no-one noticed the error that had been built into the lens until it was up in space. The device cost a lot so it must be right! What could they do? The solution was a pair of glasses – actually the glasses were the size of a telephone booth and cost \$20million and another \$100million to get up into space for fitting. It was a very costly mistake all because of measurement system error!

Measurement System Analysis assesses the integrity of the data obtained from our measurement systems. It allows us to determine whether we can confidently go forward and use the data for the purposes of process control or process improvement.

The Six Sigma Group has developed a **1 day Measurement System Analysis Workshop** that covers all aspects of the various techniques, including both variable and attribute gauge repeatability and reproducibility analysis (GR&R). By the end of the programme attendees will be capable of scrutinising their organisations measurement systems and identifying where improvement actions are required. For more information contact info@sixsigmagroup.co.uk.