

Introduction:

From Monet to Money—How Statistics Can Impact Your Bottom-Line. Discover how viewing impressionist paintings is similar to the big picture of statistical usage to improve training effectiveness and bottom-line performance.

From Monet to Money

How Statistics Can Impact Your Bottom-Line

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What does appreciating great works of art, such as Monets' water lily series have to do with how statistics can improve your business performance? In both cases you have to take a few steps back to see the big picture (Fig.s 1&2).



Fig. 1. The Water Lily Pond (1920), Monet

Many companies train in SPC or other statistical methods without a good understanding of how it all fits together. Consequently, they may not be getting the best value for their training.

This big picture is organized around three primary activities driving business processes, viz. characterization, improvement and control. These activities can be applied to any value-chain function from R&D to Marketing to Sales to Manufacturing to Customer Service, to name a few.

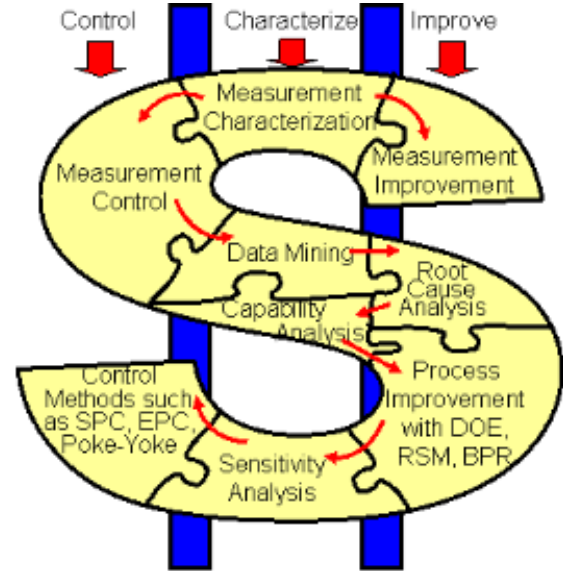


Fig. 2. Dollar Sign—The Statistical Big Picture

The fundamental requirement of any business process is the ability to measure the process. The validity of any measurement process requires a careful characterization using a statistical measurement system analysis either tailored to continuous or attribute data. This may recommend further controls for the measurement process.

When data is taken on many metrics and consigned month after month, year after year, to large databases, we end up a data black hole. This is where data goes to die—data goes in, but information never comes out.

To extract information from these data black holes, statisticians use characterization methods such as Data Mining, also called Exploratory Data Analysis or a Multi-Vari Study.

If sources of instability are found from the Data Mining, then root cause search techniques such as 8D problem solving are used to improve the stability. With a stable process, capability can be assed using statistical Capability Analysis.

If the capability analysis indicates improvement is necessary, then active process improvement proceeds using Design of Experiments (DOE), Response Surface Methods (RSM) for manufacturing cases or Business Process Re-engineering (BPR) for service and other business processes.

Armed with a complete characterization from either Data Mining or DOE/BPR, the key factors needing control are now evident or may be derived from a Sensitivity Analysis. Using Statistical Process Control (SPC), Engineering Process Control (EPC), poke-yoke solutions or other methods, controls can be tailored to the process.

The steps we have outlined are also included in other unifying statistical methods such as Six Sigma. These steps result in a statistically characterized process which impacts the bottom-line by identifying opportunities for improved cost, performance or quality. With improvement tools, these opportunities can be turned into reality. With controls in place, these realities can be sustained.

So the next time you go to an art gallery, remember to take a few steps back—and the next time you consider how to impact your bottom-line, take a few steps back to consider the big picture of statistical methods for the big dollars.