

# HOW MUCH IS ANOTHER MEASUREMENT WORTH?

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## *Abstract*

What is the economic value of a new measuring device in a process plant – a new analyzer, a more accurate flow measurement, an additional temperature or pressure measurement, etc.? Excluding the minimum set of measurements required to safely operate the plant and meet regulatory requirements, how can additional measurements be economically justified? Engineers are often presented with this issue, both for proposed new plants and existing sites. More measurements generally reduce the uncertainty in evaluating the past performance, the current state and the expected future performance of the plant. The reduction in uncertainty should then result in improved decisions. There are a hierarchy of decisions in plants that have different time scales and different magnitudes of possible financial impact. In some cases the decisions are algorithmic, i.e. a control loop. In others they are more complex, involving manual processing. Quantifying the possible improvement in future decisions and their possible impact on plant profitability is used to economically value the measurement. The value can be compared with the cost to determine an expected return on investment. In this paper a framework is presented to quantitatively address this subject and examples from the process industries are used to illustrate the procedures developed.

## *Keywords*

Process measurement valuation; decision uncertainty; financial analysis

## **Introduction**

Paper in preparation