: Why are quantitative models useful for decision support?

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Managers need to understand the value that a quantitative model creates for decision making. By identifying a set of mathematical statements that define the phenomenon of interest we are creating an analog of the real system that permits us to forecast and predict results that are useful in adapting the real system and managing its interaction with its environment. There is often no benefit from dealing with the complexity of the real system when what we desire is an indication of how changes in the state of a system will impact the results of the interaction of a system with the forces that shape outcomes. We must be careful not to expect too much from computerized decision support. Our goal is not a perfect analog of the real system. The reality is that a model is a simplified representation of the real system of interest that helps us test alternative scenarios so that our actions are based upon systematic analysis and not simply upon intuition.

A quantitative model should be a "useful simplification" of the actual system. Models are useful when the results of a modeled system help us understand and operate the actual system. When the predicted values from the model help make choices for actions related to the real system then the benefits of examining the modeled system increase dramatically.

A quantitative model is a research model that uses empirical data gathering and statistical analysis methods to collect information that are applied using the model to better understand the real system.

According to Investopedia, "By assigning a numerical value to variables, quantitative analysts try to replicate reality mathematically." Quantitative models are useful for decision support because we can manipulate paramenters and better anticipate future realities.

References

Investopedia, see http://www.investopedia.com/terms/q/quantitativeanalysis.asp#ixzz2HFV2rsN8

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