Simulating Different Decision Rules and Market Demands: New Insights Into The Beer Game

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Since many years the Beer Game has been played by thousands of participants in all conti-nents. It is not only used to introduce pupils, students, researchers, and managers to the ideas of delays, feedback, and system boundaries. It also serves as a scientific tool to conduct research about decision making in a dynamic environment, and has been used by various research projects.

This paper reports on some new findings connected with the Beer Game. Past games were analyzed and hypotheses about players decisions were formulated. In a second step, these hypotheses were tested with the help of a simulation model which replicates the structure of the Beer Game. This system dynamics model is used to explore different scenarios in their effects on over-all game performance, for instance, "no strategy" strategy, one human player and three simulated "no strategy" players, Sterman's formula for order rates, "take two aspirin and wait" rules, complete transparency of situation, etc.

The simulation model can further be used to experiment with different forms of market demand. In this way, best practices for constant, cyclic, seasonal, or increasing demand can be found. It is shown that under these circumstances a slightly modified "no strategy" strategy yields satisfying results for game performance.

This research shows that a lot of aspects connected with behavior in dynamic decision envi-ronments are not fully understood and that decision makers need tools to help them to perform satisfyingly. A classical method like the Beer Game can be used to generate insights in these issues.