

## **Capsim Simulation: Ferris Attacks the High End Sensor Market**

This will be a review for the first three rounds of the Capsim Simulation where Ferris, the computer generated company, attacks the High End Sensor Segment to take control of that market space.

In the Capstone (Capsim simulation) Course at Georgian Court University, Lakewood, NJ summer session 2012, there are six companies: Andrews, Baldwin, Chester, Digby, Erie and Ferris (Computer). The industry simulation is the sensor industry. The teams play six rounds in the game. At the beginning of the third round the modules are: Research and Development; Marketing, Production, Finance and Human Resources.

In Round 0 of the simulation the High End Segment contains the following companies and products: Andrews-Adams; Baldwin-Bid; Chester-Cid; Digby-Dixie; Erie-Echo; Ferris-Fist. The High End Statistics for all companies are set in Round 0 which ends December 31, 2012: On page 4 of the Capstone Courier we find the Production Analysis for all segments. The following are the statistics for the High End Segment.

Units' Sold-366; Inventory-40;  
Product Age Revision Date-4/19/2011; Product Age at 12/31/2012 is 1.7 years old;  
Mean Time Before Failure (MTBF)-23000; Performance Coordinate-8.0  
Size Coordinate-12.0; Price-\$38.00;  
Material Cost-\$15.98; Labor Cost-\$8.57; Contribution Margin-33%;  
2<sup>nd</sup> Shift & Overtime-0%; Automation Next Round-3.0;  
Capacity Next Round-900 and Plant Utilization 45%.

Next we go to page 7 of the Capstone Courier and review the High End Segment Analysis for Round 0.

The total industry unit demand and actual unit sales for the High End Products is 2,554. This means that 2,554,000 units of high end sensor products are sold during the year that ends December 31, 2012. High End Sensors compose 11.2% percent of the entire sensor industry sales. All companies have an equal market share of 14% for the High End Segment.

For Round 0 the Promotional Budget for all companies in the segment is \$800 with Customer Awareness of 49%. The Sales Budget for all companies is \$800 with Customer Accessibility of 48% and the December Customer Survey of 21.

We are still on page 7 of the Capstone Courier, High End Segment Analysis, for the end of Round 0. We now review Ideal Position Expectations. Performance is 8.9 and Size is 11.1. Performance and Size are the most important buying criteria at 43.0%. Ideal Age = 0.0 is 29% in importance. This means consumers want the newest product possible in the high end segment. Reliability is 19% in importance with MTBF between 20,000 and 25,000 hours. A company should never increase MTBF over the maximum number, in this case 25,000 because the money spent is just wasted. The price of the High End Product is between \$30.00 and \$40.00. Price is the least important criteria in the high end segment at only 9%.

We shall explain what Ferris does to gain an advantage in the High End Customer Buying Criteria. We download the Capstone Courier for Round 1 which ends December 31, 2013. We go to page 4 Production Analysis.

In Round 1, Ferris improves its high end product Fist. In the Research and Development Module, Ferris increases the Performance Coordinate to 9.1 and decreases the Size Coordinate to 10.9. The Revision Date for Fist is 12/22/2013. Round 1 ends December 31, 2013, so these

improvements take almost one year. Ferris increases MTBF to 24,000, an increase of 1,000 hours. The cost of R&D is \$988,000 which is found on Ferris' Income Statement in the Annual Report.

In the Marketing Module Ferris increases the price of Fist from \$38.00 to \$39.50. The Promotional Budget is increased to \$1,000,000 and the Sales Budget is increased to \$1,175,000. Note that all these changes do not take effect until 12/22/2013. Therefore when we check page 4 of the Courier, Top Products in the High End Segment, Fist has sold 368,000 units and has only a 12% market share. However, Ferris has set Fist to begin Round 2 as the top product in the High End Segment. The age of Fist at 12/31/2013 is 1.36 years.

Teams make a comparison check among the High End Segment Products in the Production Analysis section. Ferris does not increase Automation for Fist and Plant Utilization remains the same. Ferris Income Statement at the end of Round 1 for the year ended December 31, 2013 shows that the high end product Fist has a net margin of \$1,479,000.

The results of Ferris' improvements for Fist show up in Round 2. Download the Capstone Courier for Round 2. Check the bottom of page 7 for Top Products in the High End Segment. Fist is number one, controls 24% market share and sells 834,000 units. Ferris improves Fist again with an increase in Performance to 10.2 and a decrease in Size to 9.8. MTBF is maximized to 25,000 hours. These revisions take place 12/22/2014. Fist will decrease in price \$0.50 to \$39.00. Ferris Income Statement at the end of Round 2 for the year ended December 31, 2014 shows Fist has a net margin of \$6,107,000.

Now companies review Production Analysis for Round 2 to see what the competition is planning. Production Analysis displays new products. Note that Ferris invents a new product Fox. The Primary Segment is left blank. Fox has a Performance Coordinate of 11.0, Size Coordinate of 9.0, and MTBF of 25,000 hours. The revision date for Fox is 12/12/2014 and age is 0 at that date. Price is \$39.00. Plant automation for the next round is 5.5. When analyzing customer buying criteria for the High End Market Segment, Fox is a high end product. This new high end product Fox and the original high end product Fist will produce increased sales in the High End Segment for Ferris in Round 3 that ends December 31, 2015.

When we download the Capstone Courier for Round 3 and check the High End Statistics we have the new product Fox with 25% market share and Fist with 24% market share. Thus Ferris has almost 50% of the High End Product Segment. Ferris' Income Statement at the end of Round 3 for the year ended December 31, 2015, shows Fist with a net margin of \$4,680,000 and Fox with a net margin of \$8,435,000.

Teams in the competition will have to develop strategies to counterattack Ferris. A company may want to withdraw from the High End Market and focus on the Traditional or Low End market. Another company that is competitive in the High End Market may want to improve its product and take market share from Ferris.

Companies must check Production Analysis each round to analyze what the competition is doing.