

Capsim Simulation: The Human Resources Module

We shall review the Human Resource Module in the Capsim simulation course. At Georgian Court University, Lakewood, NJ in summer session 2012, there are six companies: Andrews, Baldwin, Chester, Digby, Eire and Ferris (Computer). The industry simulation is the sensor industry. The teams play six rounds in the simulation. The simulation modules are: Research and Development; Marketing, Production and Finance. The Human Resources Module is now added in the third round.

In this example we use Team Andrews at the completion of Round Two. The Human Resource Module is set to begin in Round Three. Before we go to the Human Resource Module, we will go to Decisions and click on the Production Module First. **In the Workforce Section of the Production Module we have the Complement section.**

Last Year's Complement Box has [900] and the Needed Complement Box has [793]. Note that **This Year's Percent Box has a Green Background** but the **100% has a Red Line through it**. This means, **This Year's Percent Box is enabled** and Team Andrews must make a calculation to get rid of the Red 100%. We divide [793] by [900] which is $(793/900 = 88.11\%)$. You then enter **[88%]** in This Year's Percent Box. **The Box should now turn Green without any red lines. When This Year's Percent Box is Red there are too many or too few workers and your team must make a calculation adjustment. Calculation adjustments are made after completion of the Production Schedule and any capacity or automation changes made in the Physical Plant Section.**

Note the Overtime Box: At the end of Round Two for Team Andrews we have an Overtime Percent of 14.2%. This shows the percentage of first shift workers performing overtime, on average, is 14.2%. Remember that overtime increases employee turnover and decreases productivity.

Next Go to Decisions and open the Human Resource Module. Within the Human Resource Module the **Rows** for Staffing are: Needed Complement; Complement %, Complement, 1st Shift Complement, 2nd Shift Complement, Overtime %, Turnover Rate, New Employees, Separated Employees, Recruiting Spending, Training Hours, Productivity Index, Recruiting Cost, Separation Cost, Training Cost and Total Human Resource Administration Costs. There are corresponding **Columns** with number boxes for **Last Year** and **This Year**. A student should click on the Red Arrow next to each box. A display box opens with an explanation for each section.

We shall concentrate on the two sections that are enabled in Human Resources for this simulation. **The Recruiting Spending and Training Hour sections are Green, thus enabled.**

The higher your **Recruiting Spending Budget** the better worker your company has. The base amount for recruiting spending is \$1000. There are diminishing returns for spending above \$5000. In this simulation Team Andrews should never spend more than \$5000 to recruit an employee. If Team Andrews leaves a ZERO in the box there is no effort to spend money to recruit a better workforce. Team Andrews can conservatively spend \$1000 to \$3000 for a higher level employee. There will be several rounds or years to see a significant cumulative effect for this increase in recruiting. Note that a better workforce increases worker productivity and lowers worker turnover. When an employee separates from the company there are separation costs.

The minimum employee turnover each year is 5%. If you replace 5% of workers after each round there is a 30% employee change after six years, which is significant.

Training hours are the number of hours each year a worker is taken off-line for training and development. When this box is green, Training Hours are enabled for the module. Workers can spend up to 80 hours or two weeks of training each year. When an employee is in training another worker must fill the position. Therefore a team's workforce complement increases. If you send an employee for 40 hours of training, you increase your workforce complement by one week divided by fifty-two weeks for the year or $(1/52 = 1.9\%)$. Increasing the workforce by 1.9% is not very much. If you choose to train employees for 80 hours per year that is $(2/52 = 3.8\%)$. This 3.8% increase in workforce complement for training may be too expensive. It is up to the individual team to decide the correct amount of training necessary to have a strong workforce.

Training produces a higher productivity index and a lower turnover rate. Each training hour costs \$20 per worker in additional training costs. Higher productivity means fewer workers are necessary and this drives down labor costs per unit.

When the **Productivity Index** displays 100% that means new workers are just as good as old workers. If 110% is displayed in the box that is 100% divided by 110% or $(1/1.1 = 91\%)$. This means you only need 91% of the workforce complement because these workers are a higher quality recruit and better trained. One final note, overtime spending and a high employee turnover rate decreases the productivity index.