Global Bike Go: Explore Production – Scenario

Description Read the following scenario for Global Bike Go: Explore Production to familiarize yourself with the initial situation of the business game and to understand the underlying conditions.

Time 30 min

Learning Objective (Explore Production) Understanding of simple rough-cut scheduling (scheduling and capacity planning).

Production planning is significant in many value-adding companies, e.g. the cycling industry. As a subsection of the operative production management, production planning takes care of a smooth and economic manufacturing procedure. The basis for this are several dicisions, which need to be made on different management levels. In detail this means the following:

The sales department already did the sales planning (planning horizon typically around 6-12 month). Using primary requirements planning the amounts of products intended for sales are determined (planning horizon typically around 3-6 month). Afterwards, the secondary requirements planning will calculate the necessary raw materials and semifinished goods, which will be used for production of the determined primary requirements. As a result, you will see the monthly planned orders as "Target Output next Month". It is up to you to determine the matching scheduling and capacity planning.

In this round-based game, multiple groups (or single players) compete indirectly as production planners of different companies. All of them start with the same conditions (e.g. with two assembly workers), due to similar requirements planning. Each round represents one month. Once the game has initially started, the current month will be the first month for planning. At the beginning, you will receive information about the current target output, the available working days as well as the current number of employees as a support for your decision making.

It is your objective to match the monthly target output while taking care of the capacity situation as well as minimizing the production cost per bike. In order to reach the goal you can manipulate the following two input values: You can **hire or fire** up to five additional **employees** per period. Moreover, you can **set** the planned **production time** per bike. Below you can find an explanation of the applicated rules and effects of this simplified model:

1. Always only one **employee** is responsible to assamble the complete bike. There is no devision of labour. In addition, the production is sequential. One hour of work costs around 200€ (incl. production overheads). All employees are normally available 8 hour a day. Please be aware that there could be payed sick leave.

Your employees are a valuable resource and the basis for your production. Make sure to plan carefully and keep in mind that hiring and firing has financial impact to your business.

2. The **production time per bike** is set accumulated for the whole routing. You cannot define it individually for every task as usual. The value can be 10 to 35 minutes per bike. If you set the duration to high, your employee has more than enough time but the production cost will increase. However, if the duration is to low, your employee is under pressure of time, which will cause production errors and accidents. This might lead to absence due to injuries. Always try to avoid back orders. If your bike cannot be produced and delivered as primissed, your customers receive a 500€ voucher per bike (compare sales deduction).

   Generally, you should not try to match the targets over perfectly as there will always be repairs, errors and accidents. Try to estimate the temporary optimum.

After each round, you can see the actual values and match them with the target values. In addition, you will see the costs as well as the number of back orders. In the details view of a specific round, you can see from which values add up to the overall cost as well as the production time. The monthly results as well as the new target values will be the basis for your decision making for every new round. It's key to monitor and to analyse the production results continuously to make the best decisions. After a while, the results of all companies will be compared. The company with the lowest (average) production costs per bike is the winner.

So the important questions are: Can the given production target be matched with the existing ressources? Is it worth to hire new employees or is it even necessary that some of them leave the company? How can production errors and accidents be minimzed? Plan carefully and try to find the optimal production strategy!