

# Global Bike Go: Explore Production (Beta)

This document is intended to support the instructors managing Global Bike Go: Explore Production. For this purpose, game parameters, results and mechanics will be discussed in particular.

## Product

SAP S/4HANA 2020  
Global Bike

Fiori 3.0

## Level

Instructor

## Focus

Production Planning and  
Execution

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## Version

4.1

## Last Update

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## MOTIVATION

The learning objective of this business game is to understand simple rough-cut scheduling in the form of scheduling and capacity planning. Gamification elements are used to improve user engagement and learning success.

The main objective of this document is to support instructors managing Global Bike Go: Explore Production. For this purpose, game parameters and round results are explained in particular. Additionally, some information about game mechanics is given.


## NOTES

Global Bike Go (Beta) is only available for the Global Bike data set, which has exclusively been created for SAP UA global curricula.

## Create Game: Set Game Parameters

**Note** The following steps have to be performed in order to create a new Explore Production game.

### Create Explore Production Game


After adding any course as described in the **General Instruction**, you can use the button  **Create Game** to create an Explore Production game for it. You will be redirected to the following screen to set the game parameters.

#### Create Explore Production Game

Number of Companies:	<input type="text" value="3"/>
Optimal Production Time (20 min. - 30 min.):	<input type="text" value="22,50"/> min.

### Set game parameters

The number of companies is inherited from the course and cannot be changed. However, you can set the **Optimal Production Time**. As the sum of all steps in a routing, it corresponds to the optimum production duration for exactly one bike. This fixed value forms the optimum duration and leads to a minimum of production costs. That means, with decreasing duration, errors and accidents become more frequent, whereas with increasing duration, more (personnel) costs per bike are incurred. The exact ratio of all costs can be found in the section on game mechanics.

As soon as all parameters are setup, the game will be started by pressing the button . You will be redirected to the details screen of the created game.



## Admin User Interface (Game View)

**Note** The admin interface (game view) displays all game data. Three tabs separate the view. In addition to the “Information” tab (contains the game parameters) and the “Company” tab (already described in the **General Instruction**), the “Results” tab is now introduced.

### „Results“ tab

This tab shows - if available - the results of all companies grouped by rounds. The following information is displayed:

- Company – ID of the respective company
- Change in No. of Employees – Due to hiring or firing
- Target/Actual Production Time per Bike – Comparison of planned and actual production duration
- Actual Output – Actual output quantity
- Backorders – Total of all unfulfilled orders
- Cost of Goods Sold – Total costs (incl. sales deductions) per bike produced

By clicking on the results of a company in a certain round, you will get to the respective detailed view. This contains the following additional information:

#### „Header“

- Number of Employees (+Sick Leave) – Effective number of employees for this month
- Sales Deductions – Decrease in revenue (vouchers for back orders; 500€ per bike)

#### Time Breakdown

- Production Time – Average production time (only assembly)
- Repairs – Average time for repairs
- Accidents – Average time to recover from an accident (per bike)
- Total Production Time – Average total duration for the production of a bike (sum of all individual times)

#### Cost Breakdown (mostly self-explanatory)

- Production costs incl. production overheads
- Overhead costs contain real overhead costs (e.g. sales)



## Player User Interface – Set Input Values

**Note** This section describes the procedure for players to set the input values in more detail.

### Open „Global Bike Go – Explore Production“ app

After successfully logging into the SAP system (Fiori Launchpad) as described in the **General Instruction**, the players can open the “Global Bike Go - Explore Production” app. They will see the following screen.

#### Set production values

Next Month:	<input style="width: 60%;" type="text" value="June"/>
Working Days Next Month:	<input style="width: 60%;" type="text" value="21"/>
Target Output Next Month:	<input style="width: 60%;" type="text" value="1302"/>
Current No. of Employees:	<input style="width: 60%;" type="text" value="4"/>
Dismiss (-)   Hire (+) Employees (-5 - +5):	<input style="width: 60%;" type="text" value="0"/>
Target Production Time per Bike (10 - 35 min.):	<input style="width: 60%;" type="text" value="23,000"/>

### Set input values

The players schedule the production for the next month. By means of the following values, they can derive the changes of their number of employees and determine the planned production duration:

- Working Days Next Month
- Target Output Next Month
- Current Number of Employees
- (Results of the previous months).

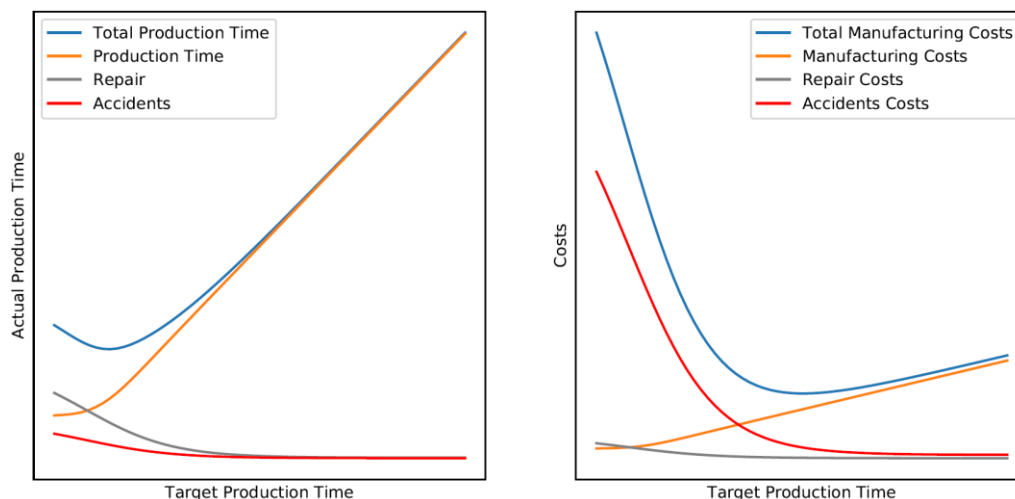


## Information regarding game mechanics – Tips for the lecturers concerning round analysis

**Note** The following section contains information concerning game mechanics. In order to enhance the insights and the procedure of round analysis, influencing factors and possible indicators as well as their implications are described.

### Influencing factors and (optimal) strategy

Global Bike Go: Explore Production is based on simplified models. As already described in the scenario, the objective of the game is to match the monthly target output while taking care of the capacity situation as well as minimizing the production cost per bike. In the following, the influencing factors (especially production duration and manufacturing costs) are explained and thus the strategic possibilities are explained. The following graphs serves as an illustration.



On the left side, the cumulated production time per bike is shown. It contains the production time (target value) as well as the time for repairs and accidents. The **pure production time** is limited by an input interval (entries of less than 10 minutes are not allowed). However, similarly low entries are not mapped directly as actual production time, because there are certain minimum specifications for all steps that cannot be undercut – no matter how much time pressure is exerted on the employees. As can be seen from the function, the target value equals the actual value with increasing production time. Additionally, with increasing time pressure on the employees (i.e. shorter production times), **repairs** and **accidents** occur more frequently or take more time on average. Apparently, the external interval limits should be avoided as far as possible.

This effect becomes even clearer, if the times are multiplied by the cost rates (see right side). Real reasons for the rise in costs are: Additional material is needed and work steps have to be repeated, in the worst case a regeneration time for employees is due, if he causes an accident on the test drive. Thus, it is not worthy to put the employees under time pressure.

**Possible indicators and their implications**

As already described within the scenario, the players get the production target, the number of working days and the current number of employees as a basis for the first decision. Therefore, it is necessary to determine the possible options for the target production duration and to compare them with the time available. Due to the uncertainty regarding sick leave as well as possible repairs and accidents, precise planning is not recommended!

After each round, besides the already known variables, the actual and target values (both times and costs) can be compared and included in the planning. In general, it is important to find out the optimal production time (means the minimum of repairs and accidents) experimentally. Subsequently, the resources should be effectively planned with regard to the changing production targets (seasonality) in order to minimize the cost price. In many cases, it does not make sense to put time pressure on the employees, but rather to hire additional employees.

