Business Process Analysis Case Study

This case study introduces the Global Bike enterprise with focus on its organizational structure and business processes. For this purpose, a comprehensive business process model was developed and visualized using ARIS Business Designer for SAP by Software AG.

**MOTIVATION**
Whereas the Global Bike Inc. case study introduces GBI’s historical background and strategy in prose format, this document illustrates Global Bike’s enterprise structure and core business processes using a comprehensive enterprise model.

Beside organizational diagrams for the GBI companies in Germany and the US, business processes such as Sales and Procurement are visualized.

The enterprise model is enhanced with additional models like a business vocabulary, document flow diagrams, finance models and SAP screen diagrams.

**PREREQUISITES**
None

**NOTES**
This case study uses the Global Bike Inc. (G.B.I.) data set, which has exclusively been created for SAP UA global curricula.
**Introduction**

**Learning objective** Get familiar with Global Bike’s enterprise structure.

**Scenario** As a new Global Bike employee you would like to get familiar with Global Bike’s enterprise structure. Does Global Bike operate regionally, nationally, or globally? Which locations are established?

The Global Bike Group is composed of *Global Bike Inc.*, in short GBI, in the US and the German subsidiary *Global Bike Germany GmbH*. In North America, the three locations Dallas, San Diego and Miami are assigned to the sales regions (East and West). In Germany, Hamburg is established in the North and Heidelberg in the South. The figure shown below shows the enterprise structure.

In order to visualize its organizational and process structures Global Bike has developed a comprehensive enterprise model based on the ARIS and BPMN notations. The 4-tier model architecture includes organizational units (1), processes (2), functions (3), and data objects (4).

For the processing of this case study, please open the following link:

Organizational Structure

**Task** Get familiar with Global Bike’s organizational structure.

**Time** 10 min

**Short Description** Use the organizational diagram to get familiar with Global Bike’s organizational structure.

In this chapter you will get familiar with the organizational structure of the US company *Global Bike Inc.* You will get to know four different model hierarchy levels:

1. Core business level,
2. Overview level,
3. Detail level and

Each layer will now be explained in detail.

At first choose below Profile “**GBI 21 Istzustand. as-is-status (OPM)**” and select in the following screen “**Englisch (Vereinigte Staaten von Amerika)**”.

Select on the navigation bar “**Contents**”. The folder structure on the right side contains all models illustrating Global Bike’s as-is-status.

**Note** The models located in folder *GBI Repository based on SAP Solution Manager Project* serve as an SAP-based model repository for individual model modifications, e.g. the development of the to-be status which is not relevant for this case study.

In order to display GBI’s organizational structure in the US please use the following menu path:

**Menu path**

GBI as-is-status ► GBI-Curriculum ► Central Models ► 1. Core level ► GBI Organizational chart USA [Organizational chart]
Now, you see the organizational structure of GBI US. Both Co-CEOs John Davis and Peter Schwarz run the Global Bike enterprise which is divided into the regions US and European Union (EU). Each of these regions has its own President.

In addition, the highest level (Core level) includes individual departments. There are five main departments in the US: Operations, Marketing, IT, Human Resources and Finance. Each of these departments has a general manager who supervises additional employees in his or her area.

If you look at the Operations Department and follow its hierarchical structure down to the next level (Overview level) you see that the Vice President (Operations) supervises three plant managers and one purchasing manager.

One level below, in the Detail level, Plant Manager Hiro Abe directs Production supervisor Jun Lee and Warehouse Supervisor Ricardo Robles. Those are then responsible for additional nine respectively three employees.
Should a person – independent of its position – act in a specific role, it is assigned to a yellow rectangle with a dotted line. *Production supervisor Jun Lee*, for example, is acting as a *Production planner*. This role consists of specific tasks which will be detailed later.

Now, you have learned all important elements of an organizational chart using the examples above. Following you find general definitions for all four elements.

An **Organizational unit** describes an integral unit of a given enterprise, which managers and further positions can be assigned to.

**Positions** are explicitly defined responsibilities within an organization. Each position defined individual requirements.

**Persons** are employees with a relationship to the company and fill positions assigned to a respective organizational unit.

**Roles** combine similar tasks within the company and may be assigned to several persons.

Another example for roles in the Global Bike enterprise can be illustrated by the sales employees *Elisabeth Harmon* and *Gabriela Montes* in the *Marketing Department*. Both are assigned to the roles *Customer agent* und *Contact agent*. 
CASE STUDY

Object Information

Task Display additional information for different model objects. Time 10 min

Short Description Use the enterprise model to display detailed information on Elisabeth Harmon.

For each object introduced in the previous chapter (organizational unit, position, person, role), detailed information can be displayed. In order to do, please click on the desired object. Now, in the right part of the screen, a table with object information is shown.

Elisabeth Harmon is a person listed in the GBI Organizational chart USA only. She fills the position Sales person 1 and acts in the roles Customer agent and Contact agent roles.

<table>
<thead>
<tr>
<th>Relevant for</th>
<th>GBI Organization chart USA</th>
</tr>
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<tbody>
<tr>
<td>Connected to</td>
<td>Contact agent</td>
</tr>
<tr>
<td>is of type</td>
<td>Customer agent</td>
</tr>
<tr>
<td>occupies</td>
<td>Salesperson 1</td>
</tr>
</tbody>
</table>

If you now select the role Customer agent (by clicking on the object in the organizational chart or by clicking on the object type under “Connected to” in the Object screen on the right) you see, below “Relevant for”, that the GBI Organization chart DE is listed as on occurrence. This is because the role Customer agent exists both in the US and in Germany. In addition to the employees you already know (Elisabeth Harmon and Gabriela Montes), you find Chris Oderwald and Dennis Spies.

<table>
<thead>
<tr>
<th>Connected to</th>
</tr>
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<tbody>
<tr>
<td>carries out</td>
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<tr>
<td>creates</td>
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</tbody>
</table>

Select the GBI Organization chart DE which displays the organizational diagram for Global Bike Germany GmbH. The role Customer agent should already be selected and centered in your screen. Left to this element you find the persons Chris Oderwald and Dennis Spies who are filling the position Internet Sales Person 1 and 2 in the German company.
CASE STUDY

Business Processes

Task View the current status of GBI business processes.  

Time 15 min.

Description Use ARIS to get familiar with the GBI business processes.

Besides the central models you will find the single SAP models in the menu. They are module specific. Therefore it needs:

- CO (Controlling)
- HCM (Human Capital Management)
- MM (Materials Management)
- PP (Production Planning & Execution)
- SD (Sales and Distribution)

Go back to the folder as-is-status to have an overview of all GBI-departments:

GBI as-is-status ► GBI-Curriculum

Choose the folder Sales and Distribution (SD). Within the core business level you will find the navigation tree where all SAP processes of the area SD are listed. In the sub-item Overview level these processes are brought into chronological order in a business process chain.

The sales order process is separated into four single processes. First of all, master data is applied or changed. Concerning sales and distribution, offers are created with relation to sales orders. After the verification via the customer, the sales order is transformed into a Delivery. For the distribution, goods are prepared to send them to the customer. The process is ending with the billing document and the entrance of customer payment.
Choose *Create New Customer* to display the process more closely. In order to do so, please click on the ARIS symbol and select *Create new Customer (EPC)*. As a result you see the appropriate (extended) event-driven process chain (eEPC).
Every single EPC has got a beginning and an ending event depicted by a purple hexagon. Functions on the other hand are visualized as rounded rectangles. In the given case the event „new customer to be created“ is the trigger for the function „create customer“ and is fulfilled with the event „customer created“. Events and functions are connected by arrows.

In contrast to a simple EPC, an extended EPC (eEPC) additionally depicts organizational units (cf. page 5), data objects (blue rectangles) and input/output mediums (green rectangles). Through the assignment to the modeling objects, responsibilities as well as the input and output of data is symbolized. Finally process paths (rounded rectangle with deposited hexagon) are used to refer to previous or following process steps.
**eEPC: Organizational Units**

**Task** Get familiar with the organizational units in the eEPC.

**Description** Use the model to identify the organizational units of the process step *create new customer*.

In the example we assume that we want to create a new customer. This is our starting event. In the following process step, an employee has to deposit data. Though, the system organizational units company code, sales organization, distribution channel, division and plant of a debtor worker must be declared.

Therefore use again the overview graphic (cf. Page 2) about the GBI enterprise. Terms like client, company code or sales organization are defined in the SAP terminology and can be entered into the overview.
For global enterprises, it is important to differentiate between customers to be created in Germany or in the US and respectively it is important where they are ordered. Besides different currencies there are different laws and taxes as well, which must be considered. This is done via company code. For instance, a customer in the US must be created. Therefore the question is, if the customer is served by US West or US East (sales organization) and in which plant or respectively sales office (San Diego, Dallas, Miami) the goods are produced. Besides the distribution channel, (internet, wholesale trade) the division must be determined. Within GBI, divisions can be bicycles and accessories like air pumps.

The above named information’s are collected by an employee, which has the role East Representative Miami. If you click on the object East Representative Miami in the eEPC, an information box about the objects appears on the right side. In the area Relevant for choose the GBI organization chart USA. In the organizational structure of the American subsidiary company you can see that David Lopez is responsible for the creation of new customers in the US. Again, click on East Representative Miami and afterwards on EPC-shapes create new customer to get back to the original eEPC.
**eEPC: Functions (SAP Screens)**

**Task** Get familiar with the screens in the eEPC.  
**Time** 10 min.  
**Description** Use ARIS to display the screen used in eEPC *Create New Customer*.

The *East Representative Miami* has collected the needed data altogether and shall enter those data via the offered screen and therefore generate a customer master record.

The customer data is entered into the SAP system via screen in the transaction „**XD01 – Customer create**“. This is represented by a green rectangle. For this screen, click on the ARIS symbol.

For example, in sub screen ”General Data: Address”, the SAP system needs name and postal address of the potential customer and is giving the possibility to do optional entries (e.g. salutation, state).
Click again on the screen symbol (green rectangle). Then, click on the right side of the information box under Relevant for on the EPC “Create New Customer” to go back to the EPC. The data of all screens yield the customer master data in the end. This is finally and secured available in the system. The final event „Customer created“ is now reached.
**eEPC: Data**

**Task** Deal with the customer master.  
**Time** 5 min.

**Description** Use ARIS to include the new customer master data in the system.

After the *East Representative Miami* introduced all customer data in the system, they are deposited in the system as a customer master data. If the customer wants to make a delivery request in GBI now or later, it will not be necessary to collect his data again. Instead the data is given for all departments which need the necessary information.

Choose the object *customer master* in EPC. On right hand side you will find normally the object information. “Relevant for” includes the technical term model “*Business Vocabulary/Objects*” which you have to choose by clicking. The *Business Vocabulary* offers you all in GBI context used synonyms for „customer master data“. Take a moment to watch the terms again.
Click on *customer master* to get the object information on right-hand side again. In the chapter *Relevant for*, you will find beside several EPCs, characteristics of the category eERM. Click on the *Data model Integration SD FI*.

Here, we can see a very simple example of an ERM – Entity Relationship Model. Entities (organizational data, master data, transaction data etc.) relate to each other. By using an ERM these relations can be depicted clearly. A customer master data can include several customer orders or alternatively no customer order (if you only deal with a potential buyer). A *customer order* exists only for one customer. Furthermore one *customer order* can start several *Outbound deliveries*. An Outbound Delivery can summarize several *customer orders*.

Click on the *customer master* in eERM and choose, on the right-hand side, below *Relevant for*, the eERM *GBI Data Model*. 
You can see an overview of different functional areas. Every area consists of relevant master and transaction data. As we know already, these data are visible for all departments if they have an authorization for them.

The customer master data that was created in the SD area by the *East Representative Miami* to speed up future *sales orders* can be found in the financial department as well. This is due to the fact that for *billing* customer data is needed, e.g. the customer number.
**eEPC: Document Flow**

**Task** Deal with the document flow in the area sales and distribution.

**Description** Use ARIS to follow the document flow in the area of SD.

As soon as transactions are executed in SAP ERP, the system automatically creates corresponding documents, e.g. a customer quotation or a debtor invoice.

Go back to the SD business process chain:

GBI as-is-status ► GBI-Curriculum ► Sales and Distribution (SD) ► 2. Overview Level ► Sales and Distribution (SD) [BPMN process diagram (BPMN 1.x)]

Choose the process *Create Customer Inquiry*. The process belongs to the area quotation processing/order processing and can be opened by double clicking on the process or by a simple click on the ARIS symbol.

Besides the named symbols, in this eEPC two objects of the type information carrier can be found. Choose the lower one of the two (*Customer Inquiry*). In the object information, in the area Relevant for the information carrier diagram *GBI document flow* is listed. Please click on *GBI document flow* to open the diagram.
In the middle, you can find the information system of the customer (on top) and the SD department in the GBI corporate group (below). If a customer has a question – e.g. concerning the price of 100 bikes – it will be deposited in the system. The resulting offer and the sales order will be deposited as well by the SAP system.

Choose the document *sales order* and click, on the right side in the area object information, on the EPC Relevant for *Create Sales Order Referencing a Quotation*

Via GBI document flow you navigated from one process step to another one because the processes are built on each other like documents and because they are linked as well.

After you have learned more about the connection between documents and processes, the next step will be about information that includes such documents. Therefore either double click on the information carrier *Sales Order* or click on the ARIS symbol one time. You can see three functional areas. The sales order document is separated into those three areas.
A **Primary key**, e.g. *Sales order number*, defines the data set clearly. It can be typed in by the user or the system advances it automatically.

A **Foreign key** belongs to an existing *primary key*. The primary key can be found by means of the *characteristics*(*object information*), e.g. the customer number of GBI in the SAP-system.

A **describing attribute** enables free data input, e.g. a size or a date.

The header includes the general data. Which customer placed an order? When has the order been made? What is the purchase order number in the customer system? For comparison you can see in the following example out of the related SAP screens:
In the second area, the positions of the order are shown separately with their material description and desired amount.

The last step shows the desired delivery date of the customer as well as eventually existing delivery data.
SD – FI Integration

**Task** Deal with the accounting model SD – FI.  
**Zeit** 10 Min.  
**Description** Use ARIS to understand the context between *Sales and Distribution* (SD) and *Finance* (FI).

Go back to the GBI Document Flow:

**GBI as-is-status** ► **GBI-Curriculum** ► **Central Models** ► **3.Detailed level** ► **GBI Document Flow [Information carrier diagram]**

A customer request can be the basis of an offer and later for a customer offer. Indeed it’s possible to get a customer offer without a forerun request. The next step is to check your stock on the amount of the material and if the desired wares are available at the delivery day.

If the result is positive, the delivery can begin. The relevant material amount is reserved, packed and shipped. For each successful step a document is created in the system.

Once the material leaves the company, there is an effect on the balance, inasmuch as the value of the material is missing. In the same moment an account accrues toward the customer, who requested the material. To illustrate this context, click on *Customer Payment* and choose in the object information *FI - SD Integration Point*. 

![Information carrier diagram](image)
A goods issue records the decreasing of material in the Inventory and discharges the real account in finance. The debtor bill creates an account towards the debtor. The in-payment bill balances the debtor bill and money gets transferred to the bank account.
**BPA Challenge 1**

**Exercise** Deal with the buildup of Global Bike Germany GmbH.

**Task** Take a look at the special departments of Global Bike Germany GmbH in the organizational diagram and write them down. They shall include the heads of the departments as well. Check, if the number and names of the departments are the same as in Global Bike Inc.
BPA Challenge 2

**Exercise** Deal with the positions and roles of the marketing department.  
**Task** Look at the marketing department of Global Bike Group in both organigrams (USA & Germany). Which people own – in a global sense – the roles of a *sales order processor* or respectively of a *customer request processor*?
Exercise Use the object characteristics from the organizational diagram USA.

Task How do you get from Paul Hansen (president US) to Danielle Cohen (head of accounting department) if you will navigate via relations of objects?
Exercise Inform yourself about organizational entities for eEPC.

Task In the ARIS menu choose GBI as-is-status ▶️ GBI-Curriculum ▶️ Sales and Distribution (SD) ▶️ 2. Overview Level ▶️ Sales and Distribution (SD) [BPMN process diagram (BPMN 1.x)]. Double click on the second process in the overview (Create Contact Person for Customer) or on the ARIS symbol at the side to get to the process overview. Which role has the responsible employee? Which employees in Global Bike have got this role?
BPA Challenge 5

**Exercise** Inform yourself about SAP masks screens for eEPC.

**Task** Which transaction in SAP ERP is used in eEPC *Create Contact Person for Customer* to do this business task? Which Information’s comply with Primary key, Foreign key and describing attribute?
BPA Challenge 6

**Exercise** Understand the accounting model MM – FI.  
**Zeit** 20 Min.

**Task** Open the accounting model SD – FI as shown in the last chapter. Click on the *Bank Credit* and navigate with the object information to the accounting model *FI – MM Integration Point*. Explain the differences of both models due to the different business processes (customer request/order).