

# STARFusion: Alteryx in Action



**A Case in Data Analytics and Visualization using  
Alteryx Designer and Tableau**

## General Notes and Information

It is strongly recommended that you read through the entire exercise prior to starting. Not all instructions can be provided in a linear manner.

## Process Overview

Alteryx Designer is an ETL (Extract, Transform, Load) and Data Analytics software that enables users to perform predictive analytics, spatial analytics, reporting and visualization, as well as to create analytical applications through a single workflow. Users can access and blend data from data sources, including flat files, data warehouses, relational databases, Hadoop data stores, SQL databases, Microsoft Office applications, social media platforms, other analytic tools, and third-party big data and cloud data sources.

Tableau is a visualization software that combines business intelligence platforms with interactive dashboards and analytic applications – all in one display - that can be used for interpretation of a business' key performance indicators. Tableau can visualize data originating from several file types, such as CSV files, SAP databases, and Microsoft Excel spreadsheets.

This case study describes how to analyze and transform data using Alteryx Designer, and then visualizing the transformed data using Tableau. The questions are based on sales data of Zeus Corporation, who operates globally.

The main learning objective is not only to understand how to use Alteryx Designer and Tableau, but how to analyze and clean data given a reporting request or problem, and based on possible options, how to present the best way to visualize the solution.

The human visual system has evolved to be particularly good at recognizing patterns. Data visualization has become a standard analytical tool which capitalizes on the ability of humans to recognize patterns within massive quantities of multi-dimensional data generated by business information systems. Many specific studies have led to the creation of visualization models that utilize human perception and cognition.



## “To Acquire or not to Acquire?” – Zeus Corp. Overview

Zeus Corporation is a privately held company that designs and manufactures outdoor clothing, footwear, outdoor gear and luggage products for men, women and children. While the company started by making clothing for rock and alpine climbing, they now offer apparel targeted towards bikers, skiers, surfers, climbers and others. They are a large international company, operating in over 15 different countries and offering merchandise in 12 different product lines. Zeus, along with its subsidiaries, has a large customer list, and generates high annual revenues compared to its competition. GBI is looking to acquire Zeus in order to take advantage of their product lines, retail locations, international outlets, and supply chain.

A user of SAP S/4 HANA, Zeus Corp. holds all of their operations data in an SAP database. To store the company’s financial data in a more versatile format, Zeus Corp. exports their annual Operations Reports from an SAP database and saves it in the form of Microsoft Excel files, one for each of the past three fiscal years. In order to get an executive overview of Zeus’s transactions, GBI is looking to analyze Zeus’s three fiscal years’ worth of operations reports together in a single consolidated database. Likewise, they would like to be able to quickly add new years to this aggregated database for analytics purposes. Finally, they would like to utilize the power of data visualization to determine if key performance indicators are up to GBI’s standards.

GBI needs you to serve as a consultant to assess the overall performance of Zeus and identify key performance indicators that will help Art Vandelay determine if the company is a valuable acquisition target.

**Objective:** Possible Acquisition of Zeus Corp. → Growth and Profit Increase









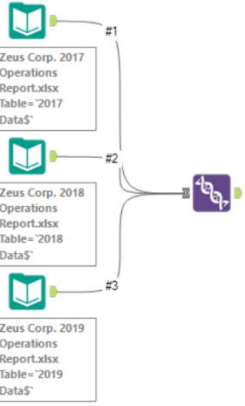




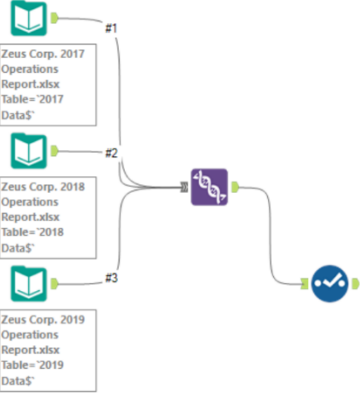
### **Company comparison:**

Global Bike Incorporated (GBI)	Zeus Corporation
Products Sold: Bicycles and Accessories	Products Sold: Outdoor Apparel
Product Lines: 2	Product Lines: 12
Market Presence: Operating in 2 countries	Market Presence: Operating in 15 countries

**Goal:** Use the historical and future data of Zeus to determine whether GBI should acquire the company to take advantage of their product lines, locations, and supply chain.



## Analytics & Reporting in Action – Alteryx Designer and Tableau

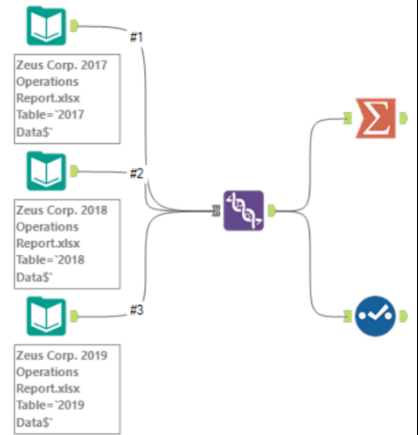
<p><b>Zeus Corp. Operations Reports: Excel Download</b></p>	<p><b><u>Download Zeus Corp.’s Operations Reports from Canvas.</u></b></p> <ul style="list-style-type: none"> <li>• In your Canvas Site, download the three <i>Zeus Corp. Operations Reports</i> Excel files found under <i>STARFusion: Alteryx in Action</i>. Each file represents one fiscal years’ worth of data for Zeus Corporation. Save/move each of the files to your <b>desktop</b>.</li> <li>• Additionally, download the Excel file titled <i>Zeus Corp. Consolidated Operations Report</i> from the Canvas site. This file is also located under <i>STARFusion: Alteryx in Action</i>. Save/move the file to your <b>desktop</b>.</li> </ul>															
<p><b>Opening Alteryx Designer</b></p> 	<p><b><u>Launch Alteryx Designer &amp; Upload Zeus’s Operations Reports</u></b></p> <ol style="list-style-type: none"> <li>1. On your desktop, locate the Alteryx Designer Application and double click on it</li> <li>2. Once opened, you may be prompted to activate Alteryx. If so, enter your email address and the keycode included in your Alteryx download email and click <i>Activate</i>. If not prompted, skip this step.</li> <li>3. If the <i>Start Here.yxmd</i> tab is selected by default, click the <i>New Workflow1</i> tab to create a new workflow. The blank screen created in the New Workflow1 tab is referred to as a Workflow Canvas</li> </ol>															
<p><b>Using the Input Data Tool</b></p> 	<p><b><u>Use the Input Data Tool to import Zeus’s Operations Reports into Alteryx</u></b></p> <ol style="list-style-type: none"> <li>1. From the <i>In/Out</i> tab , click and drag the <i>Input Data Tool</i> onto the Workflow Canvas towards the <u>middle-left portion</u>.</li> <li>2. Click the drop-down next to the <i>Connect a File or Database</i> field. From the pop-up window, select <i>Microsoft Excel .xlsx</i></li> <li>3. Select the <i>Zeus 2018 Operations Report</i> file from your desktop and click <i>Open</i></li> <li>4. Repeat Steps 1-3 for the <i>Zeus 2019 Operations Report</i> and <i>Zeus 2020 Operations Report</i> Excel files</li> </ol> 															
<p><b>Using the Union Tool</b></p> 	<p><b><u>Use the Union tool to join 3 years’ worth of Operations Reports into 1 consolidated dataset</u></b></p> <ol style="list-style-type: none"> <li>1. From the <i>Join</i>  tab, click and drag the <i>Union Tool</i> onto the Workflow Canvas.</li> <li>2. Click the <i>Link Start Tab</i>  located to the right of the <i>Zeus 2018 Operations Report</i> file and drag it to the <i>Link End Tab</i>  located on the left side of the <i>Union tool</i>.</li> <li>3. Repeat Steps 1 &amp; 2 for the <i>Zeus 2019 Operations Report</i> and <i>Zeus 2020 Operations Report</i> files.</li> </ol> 															
<p><b>Using the Select Tool</b></p> 	<p><b><u>Use the Select Tool to choose the data you want to analyze</u></b></p> <ol style="list-style-type: none"> <li>1. From the <i>Preparation</i> tab  and click and drag the <i>Select Tool</i> onto the workflow canvas.</li> <li>2. Click the <i>Link Start Tab</i>  located on the right of the <i>Union tool</i> and drag it to the <i>Link End Tab</i>  located to the left of the <i>Select tool</i>.</li> <li>3. Click on the Select tool once and in the <i>Workflow Configuration</i> window on the left side of the Canvas, ensure that <u>only the boxes next to the following fields are checked</u>:</li> </ol> <table border="0" style="width: 100%;"> <tr> <td>- Category</td> <td>- Date</td> <td>- Number of Issues Reported</td> </tr> <tr> <td>- Product Lines</td> <td>- Quantity Sold</td> <td>- GMR</td> </tr> <tr> <td>- City</td> <td>- Sales Revenue</td> <td>- Fiscal Quarter</td> </tr> <tr> <td>- Country</td> <td>- Gross Margin</td> <td>- Fiscal Year</td> </tr> <tr> <td></td> <td></td> <td>-*Unknown</td> </tr> </table> 	- Category	- Date	- Number of Issues Reported	- Product Lines	- Quantity Sold	- GMR	- City	- Sales Revenue	- Fiscal Quarter	- Country	- Gross Margin	- Fiscal Year			-*Unknown
- Category	- Date	- Number of Issues Reported														
- Product Lines	- Quantity Sold	- GMR														
- City	- Sales Revenue	- Fiscal Quarter														
- Country	- Gross Margin	- Fiscal Year														
		-*Unknown														

## Using the Summarize Tool



### Use the Summarize Tool to configure an Alteryx-embedded report

1. From the **Transform** tab click and drag the **Summarize Tool** onto the top portion of the Workflow Canvas
2. Click the **Link Start Tab** located on the right of the **Union tool** and drag it to the **Link End Tab** located to the left of the **Summarize tool**.
3. In the pop-up window under **Fields**, click the white box next to the **Product Lines** field, select the drop-down in the **Add** box and select **Group By**
4. Click the white box next to the **Number of Issues** field, select the drop-down in the **Add** box and select **Count**

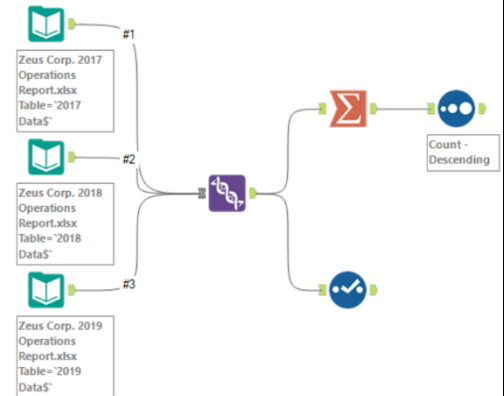


## Using the Sort Tool



### Use the Sort Tool to organize the report in descending order

1. From the **Preparation** tab click the **Sort Tool**. Drag it to the right of the **Summarize Tool**
2. Click the **Link Start Tab** located on the right of the **Summarize tool** and drag it to the **Link End Tab** located to the left of the **Sort tool**.
3. Under the **Name** field, select the **Count** option
4. Under the **Order** field, select the **Descending** option
5. Click the **Run** button at the top of the screen.
6. Click the **Link End Tab** to the right of the **Sort tool**. The completed summary will appear at the bottom of the screen.

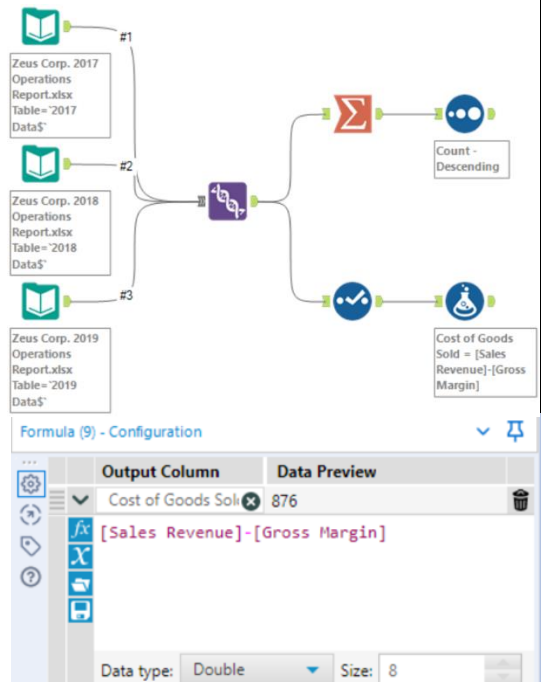


## Using the Formula Tool



### Use the Formula Tool to create a Cost of Goods Sold calculation

1. From the **Preparation** tab click and drag the **Formula Tool** onto the Workflow Canvas to the right of the **Select Tool**
2. Click the **Link Start Tab** located on the right of the **Select tool** and drag it to the **Link End Tab** located to the left of the **Formula tool**
3. In the **Formula Configuration Window** on the left side of the screen, click the drop-down arrow located next to **Select Column** and select **+ Add Column**. Name this new column **Cost of Goods Sold**
4. Click the **Columns and Constants** button and select **Sales Revenue**. Once entered into the Formula box, **type a minus sign (-) next to [Sales Revenue]**
5. Click the **Columns and Constants** button on the left sidebar and select **Gross Margin**
6. Next to the **Data Type** box, click the drop-down and select **Double**



Formula (9) - Configuration

Output Column	Data Preview
Cost of Goods Sold	876
[Sales Revenue]-[Gross Margin]	

Data type: Double Size: 8



## Using the Output Data Tool



### Use the Output Data Tool to create a consolidated Excel spreadsheet


1. From the **In/Out** tab  and click and drag the **Output Data Tool** onto the Workflow Canvas to the right of the **Formula Tool**.

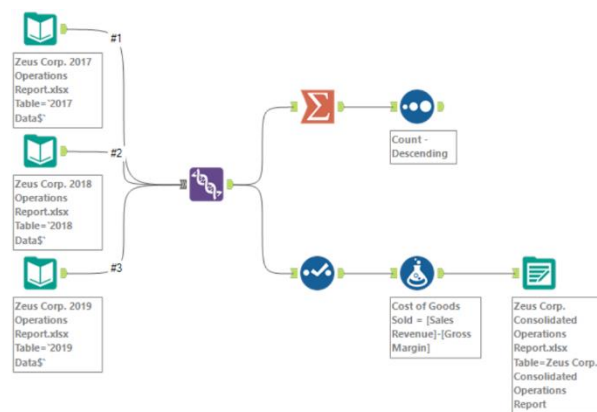
2. In the **Output Data Configuration Window**, click the drop-down arrow under the **Write to File or Database** field and select **File**.

3. If given the option, select **Microsoft Excel .xlsx** in the pop-up window. If not given the option, proceed to step 4.

4. Select to save the file as a **Microsoft Excel (\*.xlsx)** file under your **Desktop**. Name the file **Zeus Corp. Consolidated Operations Report** and click **Save**. Name the Excel sheet **Zeus Corp. Consolidated Operations Report**, and click **OK**.

5. Click the **Run** button at the top of your screen to run the completed Workflow.

6. After clicking **Run**, you can exit Alteryx Designer by clicking the **Exit** button  in the top right-hand corner of the window. When the system asks if you'd like to **Save changes to the following workflows**, Click **Save Selected**. In the pop-up window, name the file **Zeus Corp. Workflow** and save it to your **Desktop**.



## Opening Tableau Desktop Professional



### Launch Tableau Desktop Professional


1. On your desktop, locate the Tableau Desktop Professional Application and double click on it


2. Once opened, you may be prompted to activate Tableau. If so, enter the License Key provided by your Administrator to proceed. If not prompted, skip this step.

## Upload the Zeus Corp. Consolidated Operations Report to Tableau

### Upload the Zeus Corp. Consolidated Operations Report to Tableau

1. In the **Connect** section under the **To a File** column, select the **Microsoft Excel** option. From the window that appears, select the **Zeus Corp. Consolidated Operations Report** file saved on the **Desktop** and click **Open**.

2. In the data preview window, click the **Number (Whole)** icon  in the **Fiscal Year** column to format the number as a **Date**

3. Click the **Sheet 1** tab  in the bottom left-hand corner of the screen

## Visualization 1: Map Graph




### Compare Zeus's annual revenues by geographical locations


1. Under the **Dimensions** section located on the left-hand side of the screen, click on **Country, City** and drag it into the **Columns** shelf located in the top-middle of the screen.

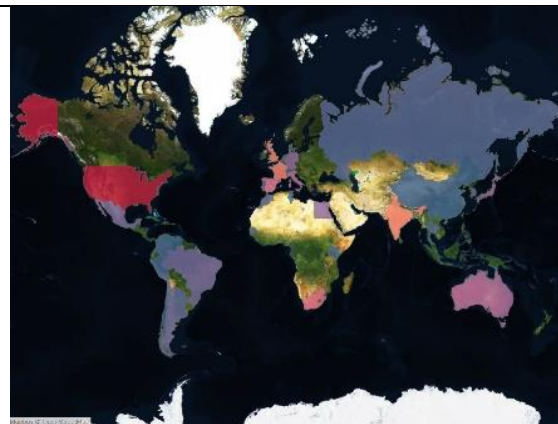
2. Under the **Measures** section located on the left-hand side of the screen, click on **Sales Revenue** and drag it into the **Rows** shelf located in the top-middle of the screen.

3. From the **Show Me** tab  select the **Maps** visualization

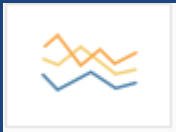
4. Under the **Marks** section located to the left of the visual, select the **Color** icon . From the Color Menu, select **Edit Colors**

5. From the **Palette** drop-down, select **Sunrise-Sunset Diverging**. Click the **Apply** icon to apply the color palette and click the **OK** icon to confirm.


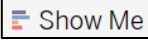
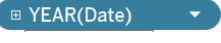
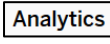
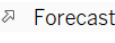

6. Navigate to the top Tableau menu bar and click on the **Map** icon . From the drop-down, select **Background Maps** → **Satellite**

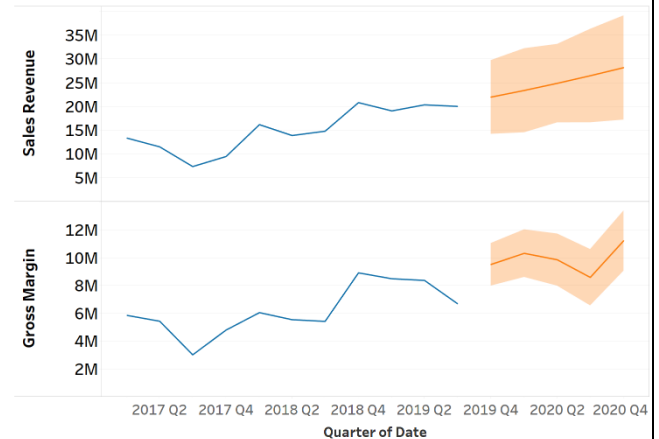


**Visualization 2:  
Lines (Continuous)  
Chart**


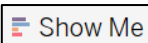



**Analyze and Forecast Zeus’s annual revenues and gross margins by fiscal quarters.**

1. Click the *New Worksheet* icon  located in the bottom left-hand side of the screen to open a new worksheet.
2. Under the *Dimensions* section located on the left-hand side of the screen, click on *Date* and drag it into the *Columns* shelf located in the top-middle of the screen
3. Under the *Measures* section located on the left-hand side of the screen, click on *Sales Revenue* and *Gross Margin* and drag it into the *Rows* shelf located in the top-middle of the screen
4. From the *Show Me* tab  select the *Lines (Continuous)* visualization.
5. In the *Columns* shelf, click the *Drop-Down Arrow* in the *YEAR(Date)* section . In the drop-down menu, select *Quarter (Q2 2015)*. **Ensure you are selecting the Quarter option that is formatted as Q2 2015, NOT Q2**
6. Select the *Analytics* tab  located on the left-hand side of the screen. From the Analytics menu, select the *Forecast* option 
7. Under the *Marks* section located to the left of the visual, select the *Color* icon . From the Color Menu, select *Edit Colors*
8. From the *Select Color Palette* drop-down, select *Color Blind*. Click the *Assign Palette* icon to apply the color palette and click the *OK* icon to confirm



**Compare Zeus’s revenues and issues reported by product lines**

1. Click the *New Worksheet* icon  located in the bottom left-hand side of the screen to open a new worksheet.
2. Under the *Dimensions* section located on the left-hand side of the screen, click on *Product Lines* and drag it into the *Rows* shelf located in the top-middle of the screen.
3. Under the *Measures* section located on the left-hand side of the screen, click on *Sales Revenue* and *Number of Issues Reported* and drag it into the *Columns* shelf located in the top-middle of the screen
4. From the *Show Me* tab  select the *Treemaps* visualization.
5. Under the *Marks* section located to the left of the visual, select the *Color* icon . From the Color Menu, select *Edit Colors*
6. From the *Palette* drop-down, select *Sunrise-Sunset Diverging*. Click the *Apply* icon to apply the color palette and click the *OK* icon to confirm.










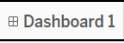
**Visualization 3:  
Tree Map**



## Creating a Dashboard




### Create a dashboard of your visualizations

1. Click on the **New Dashboard** icon  located in the bottom left-hand side of the screen to create a new dashboard
2. From the **Size** section  located on the left-hand side of the screen, click the **drop-down arrow**  to open the Size menu. Click the **drop-down arrow** located to the right of the **Fixed Size** field  and select **Automatic**.
3. From the **Sheets** section  located on the left-hand side of the screen, **click and drag** each sheet into the **Drop Sheets Here** section of the dashboard. Ensure that the layout of your dashboard resembles the dashboard pictured.
4. In **Sheet 2** and **Sheet 3**, **right-click** on the title boxes  and select **Hide Title** for each.
5. In **Sheet 1**, **right-click** on the title box  and select **Edit Title....** Delete the default **<Sheet Name>** placeholder and name the sheet **Zeus Corp. Global Trends and Analysis**.
6. **Double-click** the **Dashboard 1** tab  located at the bottom of the screen. Re-name the tab **Zeus Corp. Global Trends and Analysis**.

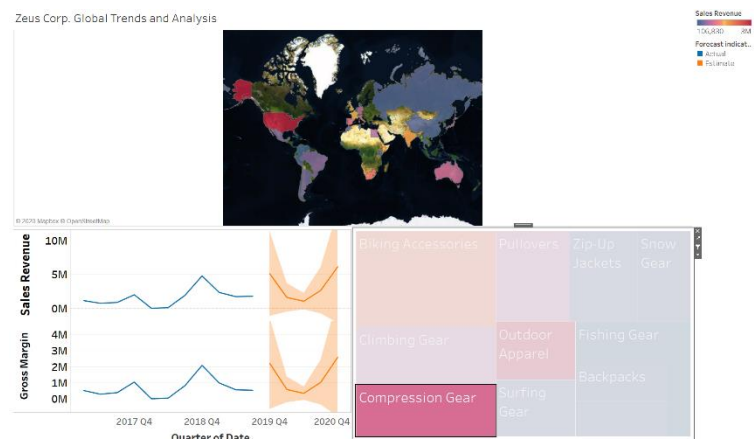


### Create and use a dynamic filter to make visuals interactive with one another

1. Click anywhere in the **white space below the colored product line squares in the Treemap** to open the visualization menu on the sidebar.
2. In the **black-colored sidebar** that appears after clicking in the white space, click the **Use as Filter** icon  to create a dynamic filter.

3. To use the dynamic filter of the **Treemap**, **click** on any of the **colored product line squares** to filter all three visualizations by independent product lines.

4. To return to the full dashboard, **click** on the **colored product line square** again.



## Creating and Using a Dynamic Filter

















## Creating a Story





### Create a Story and Analyze the Visualizations

1. Click on the *New Story* icon  located in the bottom left-hand side of the screen to create a new story.
2. From the *Size* section  located on the left-hand side of the screen, click the *drop-down arrow*  to open the Size menu. Click the *drop-down arrow* located to the right of the *Fixed Size* field  and select *Automatic*.
3. From the *Story* section  located on the left-hand side of the screen, **click and drag the Zeus Corp. Global Trends and Analysis dashboard** into the *Drag A Sheet Here* section of the story.
4. **Right-click** on the *Story 1* title box  and select *Hide Title*.
5. Click the *Presentation Mode* icon  located on the top menu bar to expand the story window.
6. In Presentation Mode, analyze the visualizations by **hovering your mouse** over different data points and **clicking** on them. To navigate the *Map Graph*, use the **Zoom In**  and **Zoom Out**  icons along with the **Pan** tool  to move around the map. Use the **Undo**  and **Redo**  icons at any time to go backwards or forwards.



### Use the SAP Business Workplace to email your dashboard and analysis to Art Vandelay

1. Using the *Snipping Tool*, take a snippet of the Zeus Corp. Global Trends and Analysis Dashboard. You can find the Snipping Tool by searching for it in your desktop search tool .
2. In the Snipping Tool window, click *New*. The screen will fade out slightly in color to signify that the system is ready to snip.
3. Click the drop-down arrow next to either the *New* or *Mode* button and make sure that the **Rectangular Snip** option is selected.
4. Your cursor will turn into a cross icon . Click and drag across the dashboard so that only the title and visualizations will be included in the snip.
5. Once the Dashboard has been snipped, click *File* → *Save as* to save the image to your **Desktop**. Give this snip the same name as the dashboard (**Zeus Corp. Global Trends and Analysis – XX & YY**)
6. Send a copy of the Analytics dashboard to your partner through your SJU email (if applicable).

### Requirement: Send a copy of the dashboard to Art, and complete a written analysis on the following:

- I. What is the value of data analytics? How could the following dashboard help Art Vandelay make decisions?
- II. Evaluate each of the visualizations that you chose to report, individually. In a few sentences per visualization, explain any significant numbers, facts, trends, or relationships that you believe exist.
- III. Based on the visualizations you created, do you believe GBI should attempt to acquire Zeus Corp.? What possible positives/negatives would be associated with this acquisition?

Send this e-mail to Art Vandelay through SAP Business Workplace by following the steps below:

**Disclaimer: Each student must submit their OWN, UNIQUE AND INDIVIDUALLY WRITTEN E-MAIL. The e-mail should be written based on YOUR analysis of the data and visualizations.**

## Sending the Tableau Dashboard and Analysis in an E-mail to Art Vandelay



# How to Send a Tableau Dashboard in SAP S/4 Hana

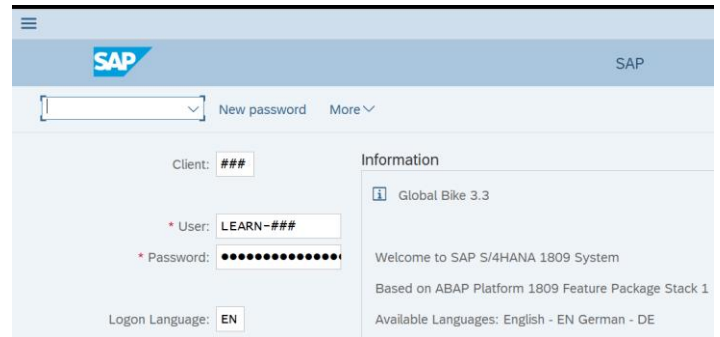
1. Login to SAP S/4 HANA by using your assigned login information:

**Server:** #HONDA

**Client:** 531

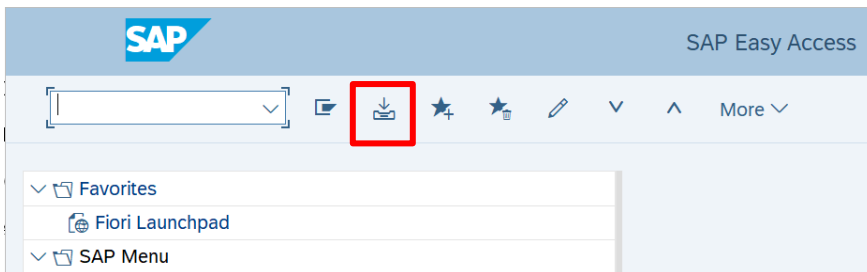
**User:** LEARN-###

**Password:** star###

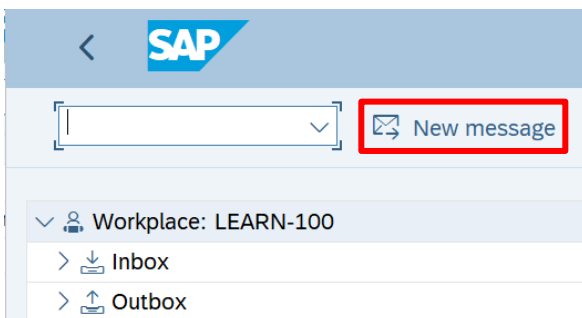


**NOTE:** Your login information may be different from the information listed above. Please check with your administrator to ensure that the proper login credentials are used.

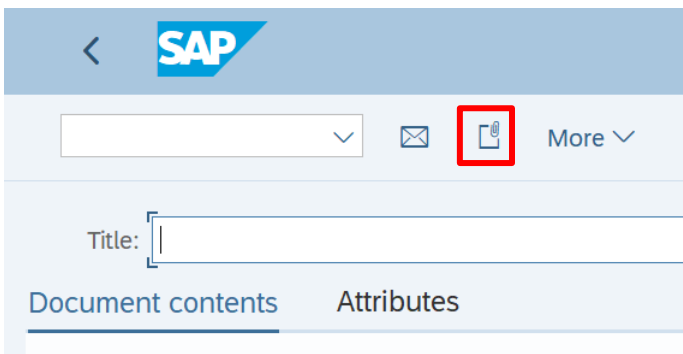
2. Once in SAP Standard Menu, navigate to the SAP Business Workplace (Highlighted in red)



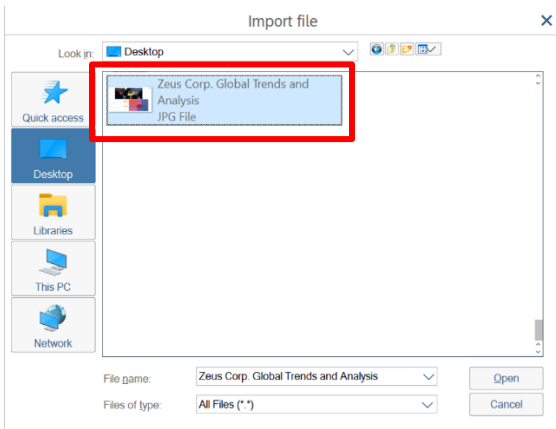
3. Create a *New Message*



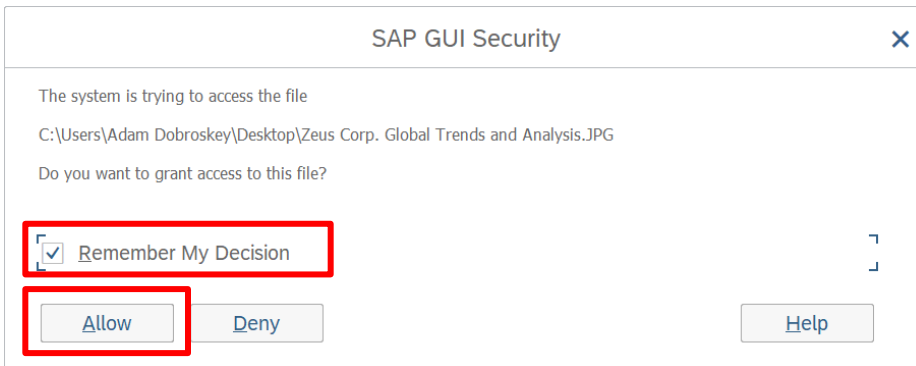
5. Select *Create Attachment*



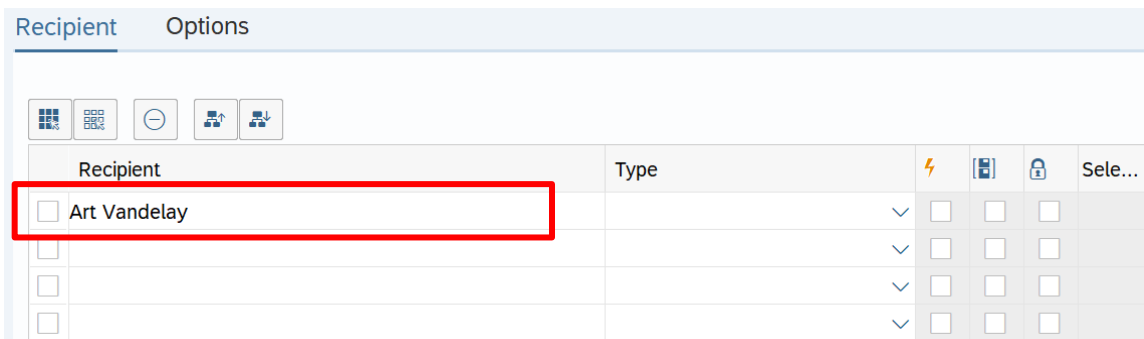
## 6. Attach your Tableau Dashboard



## 7. If you get the message below, check the *Remember My Decision* box and click *Allow*



## 8: Under *Recipient*, type “Art” and hit *Enter*. Art Vandelay should be shown under *Recipient*



## 9: Compose your Title and Message and click *Send*

