STARFusion: Integrating Alteryx and Big Data Tools within the Accounting Curriculum

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ABSTRACT

This paper explores several sets of tools and technologies within the Accounting classroom. It responds to a clarion call for accounting professors to incorporate more technology-based skills within their courses. In order to prepare students for careers in the accounting field, it also presents a technology delivery model for integration within advanced accounting courses using Alteryx and Tableau. Alteryx Designer is an ETL (Extract, Transform, Load) and Data Analytics software that allows users to perform several types of analytics, including predictive and spatial, as well as to develop business applications with a single workflow. 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.

Keywords**:** Data Analytics, Tableau, Alteryx, ETL, Data Visualization, Predictive Analytics, Big Data

INTRODUCTION AND PRIOR RESEARCH

This paper analyzes the implementation of an Accounting Information Systems course project completed by students within an undergraduate accounting curriculum. The purpose is to show students the value of analytic reporting using Alteryx and Tableau. A survey administered to 72 students enrolled in a typical Accounting Information Systems course was conducted and responses were evaluated. The primary objective of this project is to: (1) provide better understanding of the role that ETL and analytic packages offer to the modern accountant (2) to gain confidence in the use of these types of tools (3) improve big data gathering capabilities and information analysis skills (4) develop and improve documentation and communication capabilities and (5) realize the presentation value that analytical tools offer in all aspects of the accounting profession

Visualization software has emerged in university business schools across the world. Its purpose is to provide students with real business insights on how to manage and analyze vast amounts of data. Analytics has enjoyed remarkable growth in business – the challenge remains to offset that growth with able professionals who are familiar with analytic tools and use those tools effectively (Abbasi, Sarker, and Chiang, 2016). Rapid advances in technology have driven the growth of technology-driven strategies in education. The desire to produce learners with state-of-the-art tools will be a dominant direction of education for many years to come. Learning analytics crosses many discipline boundaries and diverse fields (Gašević et al, 2015). Agarwal and Dhar (2014) emphasize the benefit of using diverse data analysis methods and the challenge of incorporating them within classroom projects across multiple disciplines. Current literature offers many diverse types of data mining. techniques and analytical methods.

According to research conducted by Davenport (2006) and Daniel (2015) the data analytics process of today's businesses involves several challenges, primarily selecting and categorizing voluminous data and analyzing how that data will be used to make decisions. Current ERP systems enable the capturing of metadata very effectively and efficiently. The biggest challenge today lies in creating meaningful analytic visualization reports. Alteryx analytics is a tremendous platform allowing analysts to easily prep, blend, and interpret their data using a repeatable workflow. Add to that the power of Tableau and you have a seamless process by which to interpret business decision making. Moffitt and Vasarhelyi (2013) recognize that accountants have become the key figures in providing process strategic insight using analytics skills necessary to envision and fulfill long-term objectives. They note that accountants are no longer confined to just ledgers, but instead can use their expertise to interpret information in ways that a traditional data analyst cannot.

Reyes (2015) notes the necessity for accounting educators to sense these growing demands and provide educational programming that adapts to their students' skillsets to incorporate more analytic tools in the delivery of business education programs. Siegal, Sorensen, Klammer, and Richtermeyer (2010) emphasize that firms are demanding analytic skillsets be integrated into all accounting coursework so as to enable students to become better, more technology-enabled professionals. Bichsel (2012) points to many shortfalls in the delivery of accounting curriculum in terms of analytic programming. The most effective way for accounting education to implement these technologies to incorporate elements of data analytics with a focus on real world applications into most accounting courses in the accounting curriculum. The following case study provides an efficient way to integrate analytics using two of the leading tools, namely Alteryx and Tableau.

CASE BACKGROUND: THE ZEUS CORPORATION

Zeus Corporation is a privately held company that designs and manufactures outdoor accessories for men, women and children. While the company started by making clothing for rock and alpine climbing, they now offer products targeted towards bikers and other populations of athletic product users. 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.

The case and process overview is included as Appendix A at the end of this paper.

PROJECT OBJECTIVES

Phase 1: **Zeus Corp. Database – Broken Down by 3 Fiscal Years**

Zeus Corp. retains its transactional data from SAP by creating Excel data extracts. This process is completed on a yearly basis, and files are independently stored in separate databases. For our analysis, we must aggregate the data from three prior years into one database. This will provide us with more complete information, accurate visualizations, and precise forecasts. This phase begins the Extract, Transform, Load (ETL) process.

Phase 2: **Extract Data for Analysis – Filtering Key Information for Workflow Analysis**

The databases held by Zeus Corp. contain a multitude of information meant to be used by all facets of the enterprise. However, some of these measures are not required for our analysis, and other key metrics, such as Cost of Goods sold, are missing from the database and must be generated. To keep the reports organized, we will remove columns that are unnecessary for our analysis. Likewise, we may desire summary reports to analyze independent variables in order to further analyze the company's operations. This phase encompasses the Extract and Transform actions of the ETL process.

Phase 3: **Transform into Internal Report – Output Created for Summary of Analysis and Eventual Export**

Once the data is cleansed and prepared for visualization, an output must be created. Outputs could be formatted in several different file types, including but not limited to: Excel, CSV, Tableau Data Extract, JSON, etc. Output selection is determined by the end user's preferences for further visual analyses. This phase begins the Load action of the ETL process.

Phase 4: **Load Analysis into Visualization Software – This can be done using spreadsheet software (Excel)**

The aggregated database alone is not sufficient for our analytic purposes. To gain information about the corporation on an enterprise level, we must load the newly created database into a visualization software. This software will allow us to analyze multiple dimensions of the business and obtain a solid understanding of the key performance indicators of the business. Our decision to acquire or not acquire Zeus Corp. will be based on the knowledge obtained from these visualizations. This phase concludes the Load action of the ETL process.

Phase 5: Predictive and Prescriptive Modeling – Allows Exploration of Measures and Dimensions Over Time – Country and Multiple Variants. This will also enable preparation of the critical final report.

Before visualizations are created, we must understand the information we wish to obtain. Primarily, we would like to understand the global reach of Zeus Corp., and how GBI's supply chain and logistics channels can adapt to new markets. Likewise, we would like to create a predictive model to give our decision makers information about the future of the business based on historical trends. Finally, it is important that Zeus Corp. owns successful product lines that complement GBI's existing products and generate future value for the business. These visualizations will be used to generate a dashboard that will give a full view of the operations of Zeus Corp. over the last three years.

ASSESSMENT OF LEARNING

Assessment of learning rubric is included in Appendix B.

BEST PRACTICES AND LESSONS LEARNED

- Business analytics applications are best taught with a top-down approach allowing students to walk through pre-established modeling problems, slowly increasing their complexity. This is different from the normal course approach and is best with analytics. Teaching using analytics is an iterative approach that requires curiosity on the part of the students.
- The models are easy to use but require databases that are often challenging to obtain from real companies. Creating your own database can take time and resources. To this end, it is optimal if you can create a partnership with a large corporate enterprise that would provide databases to you. This information could be masked so as not to allow to access proprietary data
- Students need multiple exposure to these types of products. Our experience is to include it in a series of linked courses. For example, intermediate and advanced accounting. For

example, exposing students to applications in intermediate accounting before they take the advanced course. The key here again is the iterative process focusing on providing students with growing insights that evolve from the data emerging within the organization. Students report best results when they have a sense of participating in a real-world problem-solving environment.

CONCLUSION AND FUTURE DIRECTIONS

Future research should focus on additional activities that could engage students within the project assignments. The case provided students with several years of financial data from a simulated company. It would be a worthy challenge to find data on their own and build it into a Microsoft Excel spreadsheet that would be compatible with Alteryx. Alteryx Designer offers many applications that could be explored by students, allowing them more freedom in the design of their final reports. The case could also allow students to export into data visualization products other than Tableau, for example Power BI and SAP Cloud Analytics.

This case provides a worthwhile student experience on the use of business analytics in an advanced accounting course. Student responses to a survey indicated that the exercise engaged students and provided a great deal of satisfaction and competence in their attempt to understand data analytics.

APPENDIX

Appendix A

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 allows users to perform several types of analytics, including predictive and spatial, as well as to develop business applications with a single workflow.
       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 use Alteryx Designer, and then visualize the transformed data using Tableau. The questions are based on sales data of Zeus Corporation, who operates globally.
       The key learning goal is not only to understand the use of Alteryx Designer and Tableau, but how to accurately and efficiently synthesize the financial data of a simulated company and recommend some action to be taken. This would also require the students to develop a written report analyzing the information provided using the analytic reports.
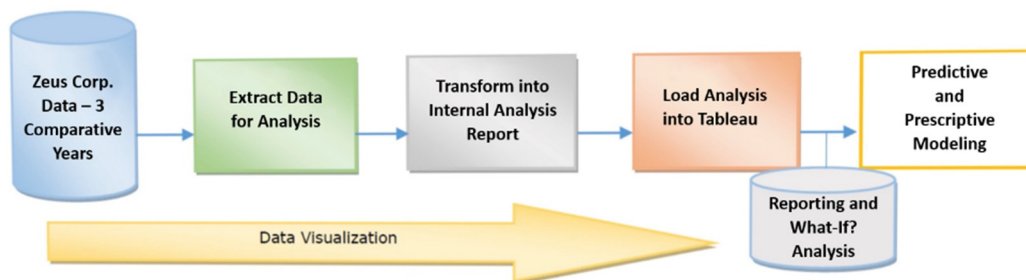
Case Overview: Zeus Corporation

Objective: Possible Acquisition of Zeus Corp. → Growth and Profit Increase
Company comparison:
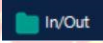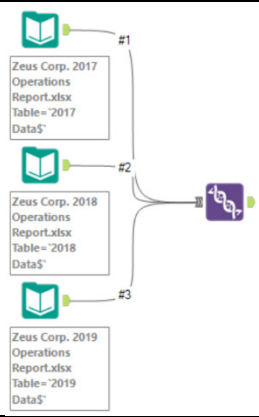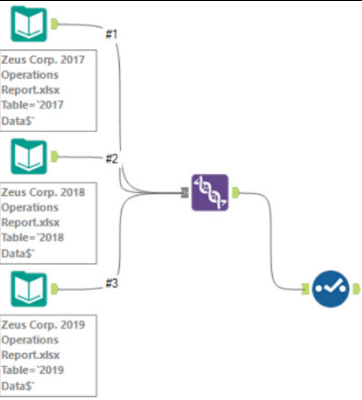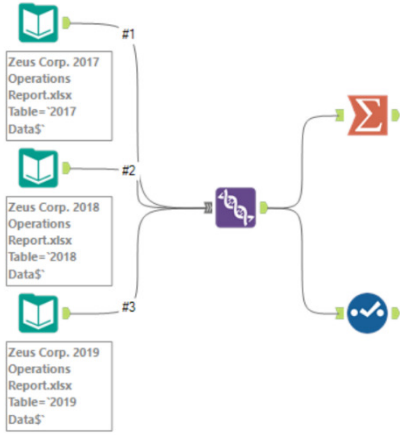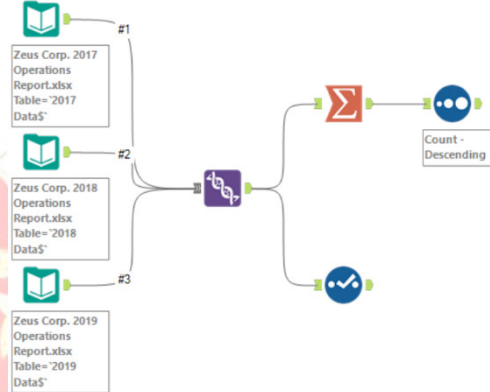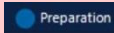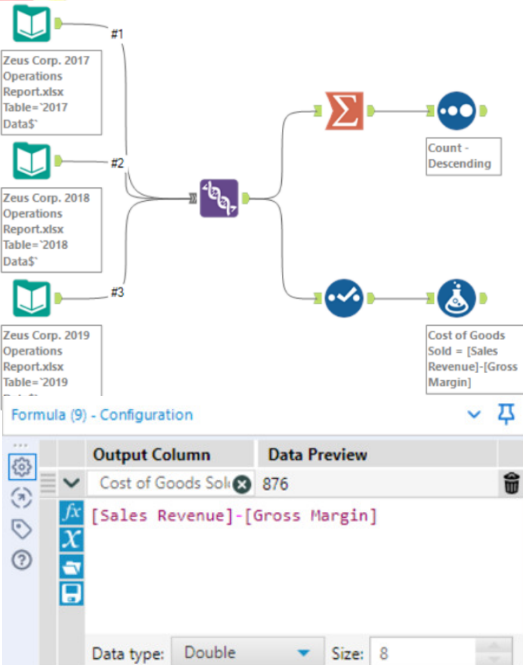
Global Bike Incorporated (GBI)	Zeus Corporation
Products Sold: Bicycles and Accessories	Products Sold: Outdoor Apparel
Product Lines: 2	Product Lines: 12
Market Presence: Operating in 2 countries	Market Presence: Operating in 15 countries

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.
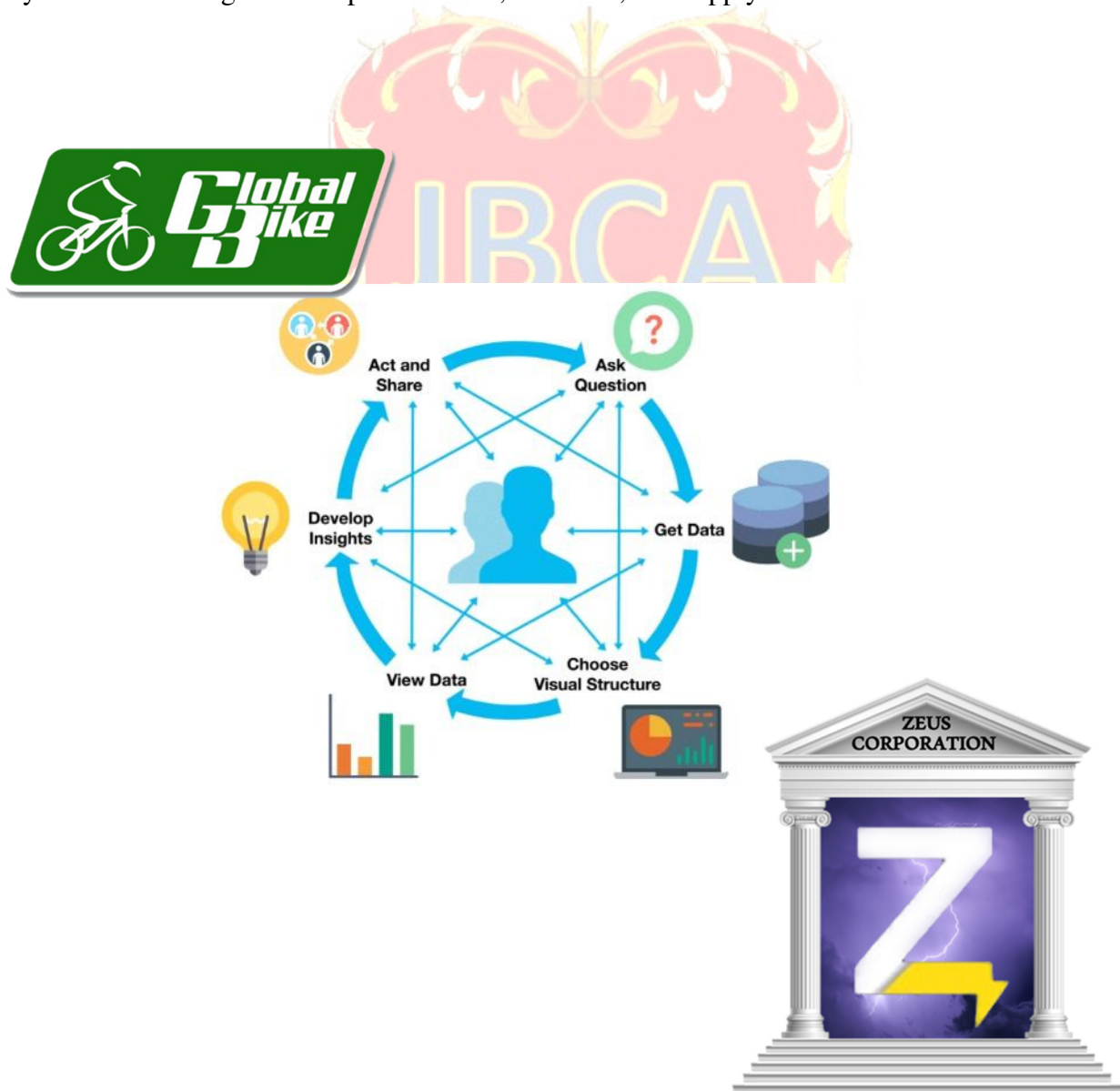
Analytics & Reporting in Action – Alteryx Designer and Tableau

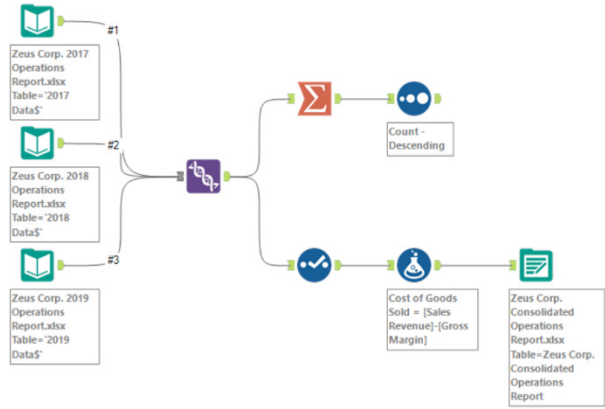|	
Zeus Corp. Operations Reports: Excel Download	**Download Zeus Corp.'s Operations Reports from Canvas.** • In your Canvas Site, download the three *Zeus Corp. Operations Reports* Excel files found under *STARFusion: Alteryx in Action*. Each file represents one fiscal years' worth of data for Zeus Corporation. Save/move each of the files to your **desktop**. • Additionally, download the Excel file titled *Zeus Corp. C.O.R.* from the Canvas site. This file is also located under *STARFusion: Alteryx in Action.* Save/move the file to your **desktop**.
Opening Alteryx Designer	**Launch Alteryx Designer & Upload Zeus's Operations Reports** **1.** On your desktop, locate the Alteryx Designer Application and double click on it **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 *Activate*. If not prompted, skip this step. **3.** If the *Start Here.yxmd* tab is selected by default, click the *New Workflow1* tab to create a new workflow. The blank screen created in the New Workflow1 tab is referred to as a Workflow Canvas
Using the *Input Data Tool*	**Use the Input Data Tool to import Zeus's Operations Reports into Alteryx** **1.** From the *In/Out* tab ![In/Out], click and drag the *Input Data Tool* onto the Workflow Canvas towards the middle-left portion. **2.** Click the drop-down next to the *Connect a File or Database* field. From the pop-up window, select *Microsoft Excel .xlsx* **3.** Select the *Zeus 2017 Operations Report* file from your desktop and click *Open* **4.** Repeat Steps 1-3 for the *Zeus 2018 Operations Report* and *Zeus 2019 Operations Report* Excel files
Using the *Union Tool*	**Use the Union tool to join 3 years' worth of Operations Reports into 1 consolidated dataset** **1.** From the *Join* ![Join] tab, click and drag the *Union Tool* onto the Workflow Canvas. **2.** Click the *Link Start Tab* located to the right of the *Zeus 2017 Operations Report file* and drag it to the *Link End Tab* located on the left side of the *Union tool*. **3.** Repeat Steps 1 & 2 for the *Zeus 2018 Operations Report* and *Zeus 2019 Operations Report* files.
Using the *Select Tool*	**Use the Select Tool to choose the data you want to analyze** **1.** From the *Preparation* tab ![Preparation] and click and drag the *Select Tool* onto 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 *Select tool*. **3.** Click on the Select tool once and in the *Workflow Configuration* window on the left side of the Canvas, ensure that *only* **the boxes next to the following fields are checked**: - 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* Σ	**<u>Use the Summarize Tool to configure an Alteryx-embedded report</u>** **1.** From the ***Transform*** tab [Transform] 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*	**<u>Use the Sort Tool to organize the report in descending order</u>** **1.** From the ***Preparation*** tab [Preparation] 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*	**<u>Use the Formula Tool to create a Cost of Goods Sold calculation</u>** **1.** From the ***Preparation*** tab [Preparation] 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 [X] 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 [X] on the left sidebar and select ***Gross Margin*** **6.** Next to the ***Data Type*** box, click the drop-down and select ***Double***

Using the *Output Data Tool*	**Use the Output Data Tool to create a consolidated Excel spreadsheet** **1.** From the *In/Out* tab ▢ In/Out 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 [Sheet 1] 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 ▤ Show Me 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 Map . From the drop-down, select *Background Maps → Satellite*
	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

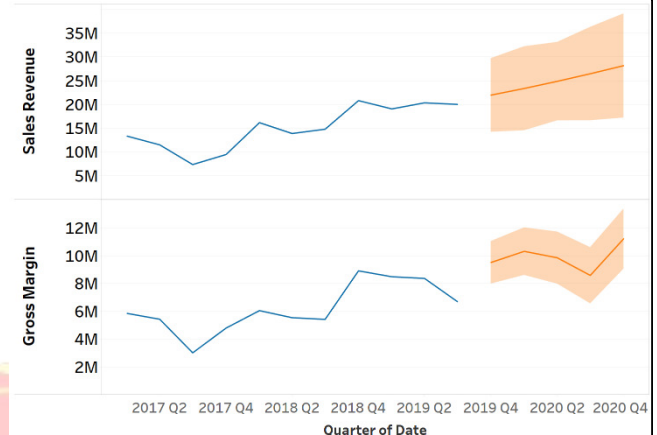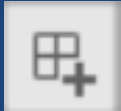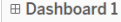|	
Visualization 2: Lines (Continuous) Chart	**3.** Under the *Measures* section located on the left-hand side of the screen, click on *Sales Revenue* and *Gross Margin* and drag it into the *Rows* shelf located in the top-middle of the screen
	4. From the *Show Me* tab ☰ Show Me select the *Lines (Continuous)* visualization.
	5. In the *Columns* shelf, click the *Drop-Down Arrow* in the *YEAR(Date)* section ⊞ YEAR(Date) ▼ . 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 Analytics located on the left-hand side of the screen. From the Analytics menu, select the *Forecast* option ↗ Forecast
	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
Visualization 3: Tree Map	**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 ☰ Show Me 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.
	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 Size 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 Fixed size and select *Automatic*.
	3. From the *Sheets* section Sheets 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 Sheet 2 and select *Hide Title* for each.

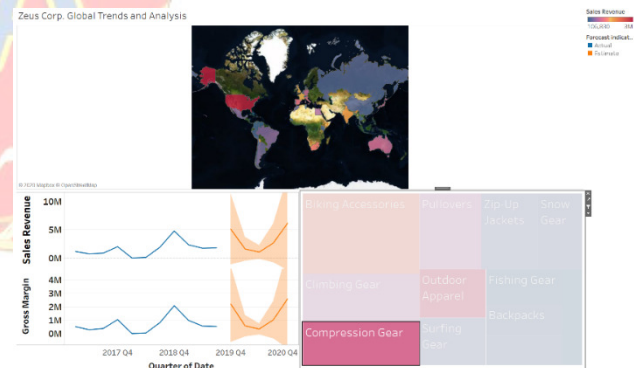|	
Creating a Dashboard [icon]	**5.** In *Sheet 1*, *right-click* on the title box Sheet 1 and select *Edit Title…*. Delete the default *<Sheet Name>* placeholder and name the sheet *Zeus Corp. Global Trends and Analysis*. **6.** *Double-click* the *Dashboard 1* tab ⊞ Dashboard 1 located at the bottom of the screen. Re-name the tab *Zeus Corp. Global Trends and Analysis*.
Creating and Using a Dynamic Filter [icon]	**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 [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 a Story [icon]	**Create a Story and Analyze the Visualizations** **1.** Click on the *New Story* icon [icon] located in the bottom left-hand side of the screen to create a new story. **2.** From the *Size* section Size 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 Fixed size and select *Automatic*. **3.** From the *Story* section Story located on the left-hand side of the screen, **click and drag the *Zeus***
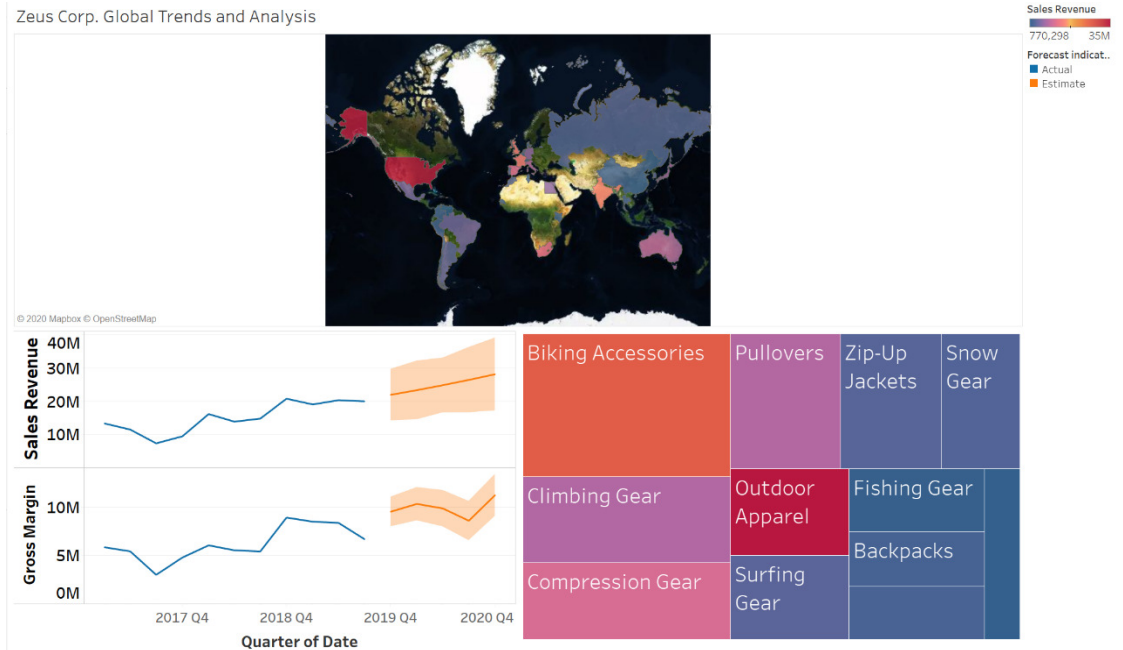
Corp. Global Trends and Analysis **dashboard** into the *Drag A Sheet Here* section of the story.

4. *Right-click* on the *Story 1* title box `Story 1` 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.

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

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.*

Appendix B

Skill Goals	Objectives	How it Will Be Assessed
Student's goals are:	Student's objectives are:	Student measures include:
1. To acquire experience using data analytics and visualization software that are widely adopted and utilized across the business world	1. Examine several years' worth of financial data from a simulated company based in Microsoft Excel spreadsheets and import into Alteryx Designer	1. Ability to accurately and efficiently synthesize the financial data of a simulated company to recommend whether to acquire a company via written analysis
2. To utilize critical thinking and analytical skills in evaluating the financial data and reports of a simulated company	2. Utilize Alteryx Designer to construct a workflow, transform and cleanse the data, and export into a single Microsoft Excel file	2. Ability to navigate Microsoft Excel, Alteryx Designer, Tableau, and SAP software to successfully complete all objectives and deliverables
3. To develop the ability to identify and create varying types of data visualizations based on specific key performance indicators	3. Import the transformed Microsoft Excel spreadsheet into Tableau and compose data visualizations based on geographical, chronological, and product-line based criteria	3. Ability to explain the economic value of data analytics and data visualization by completing a written report

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