

## Assessment 2 - Business Analytics Project (Due Aug 07, 2022)

### Description

The Insight Toys Company is an organization that manufactures toys at different production sites worldwide. We are trying to find ways to be more competitive and are striving to increase customer satisfaction. Managers of finance department need to better understand profitability and sales issues.

### Data

The **INSIGHTTOY\_SALES** data set, contains 57 variables and 1,416,058 observations. It represents the historic transactional data from the company start. For each transaction we have:

- ✓ Information on the items sold (*Product Brand, Line, Make, Style, SKU*);
- ✓ The sale value (*Order Total*);
- ✓ Various related costs (*Distribution, Marketing, Product*);
- ✓ Information on the sales representative (Rating, Target, Actual, etc.);
- ✓ Geographic information (*xyFacility Lat, xyFacility Lon, xy..., etc.*);
- ✓ Information on the vendors (Rating, Satisfaction, Distance to nearest facility);
- ✓ Text Notes taken at the moment of the order taking, based on conversation with the customer (vendor).

### Data Dictionary

Name	Type	Class	Description
Facility	Character	Category	Unique identifier of the selling facility
Facility City	Character	Category	City where the selling facility is located
Facility Continents	Character	Category	Continent where the selling facility is located
Facility Country/Region	Character	Category	Country where the selling facility is located
Facility Country/Region Code	Character	Category	Unique 2-letter code for each country
Facility Date Closed	Date	Category	If a facility were ever to be closed, none are in this dataset
Facility Date Opened	Date	Category	Date the manufacturing facility was opened, varies from 1980 to 2010
Facility State/Province	Character	Category	State or Province where the selling facility is located
Manufacturing Batch	Character	Category	Manufacturing batch corresponding to each transaction
Manufacturing Batch SKU	Character	Category	Stock Keeping Unit of various Manufacturing Batches
Manufacturing Facility	Character	Category	Identifier and location of the manufacturing facility
Order	Character	Category	Unique identifier of the order
Order note	Character	Document Collection	Free form text – notes taken at the moment the vendor ordered items. This can be used in Text Analytics
Product Brand	Character	Category	2 brands of products: Novelty and Toys
Product Line	Character	Category	8 lines of products, falling in the two product brands
Product Make	Character	Category	77 product make, falling into the 8 product lines
Product SKU	Character	Category	779 product SKUs produced, falling into the various product styles
Product Style	Character	Category	355 product styles, falling into the various product makes
Sales Rep	Character	Category	Identification of the sales representative who made the sale
Transaction Date	Date	Category	Date of the sale
Transaction Day of Week	Date	Category	Day of the week of the sale
Transaction Month of Year	Date	Category	Month of the sale
Vendor	Character	Category	Identifier and location of the vendor (customer)

Vendor Date Ended	Date	Category	When the vendor stopped doing business with us
Vendor Date Started	Date	Category	When the vendor started doing business with us
Vendor Loyalty Program	Character	Category	Binary field (Y/N) representing whether or not this vendor is in our loyalty program
Vendor Type	Character	Category	5 types of vendors: Convenience store, Discount store, Department store, Kiosk or Other
Market Penetration	Numeric	Measure	For each transaction, the corresponding % of market share in that particular region at that time.
Order Distribution Cost	Numeric	Measure	Distribution cost associated with that transaction
Order Marketing Cost	Numeric	Measure	Marketing cost assigned to that transaction (through an activity-based costing exercise)
Order Product Cost	Numeric	Measure	Direct manufacturing costs associated with that transaction. Included in the calculation of gross Margin
Order Sales Cost	Numeric	Measure	Sales-related costs assigned to that transaction (through an activity-based costing exercise)
Order Total	Numeric	Measure	Revenue from that sale
Sales Rep % of Target	Numeric	Measure	A ratio of Sales Rep Actual sales divided by Sales Rep target. Calculated DAILY
Sales Rep Actual	Numeric	Measure	Cumulative DAILY sales for each sales representative. This value should not be summed across the transactions (since it has already been aggregated)
Sales Rep Orders	Numeric	Measure	Number of orders assigned to the sales representative on a given period.
Sales Rep Rating	Numeric	Measure	Subjective evaluation of the sales representative by the vendors - from 0% to 100%.
Sales Rep Target	Numeric	Measure	Daily sales Target (goal) for each sales representative. This value should not be summed across the transactions (since it has already been aggregated)
Sales Rep Vendor Base	Numeric	Measure	Potential revenue (funnel) from all the vendors assigned to a sales representative. This value should not be summed across the transactions (since it has already been aggregated)
Sales Rep Vendors	Numeric	Measure	Number of vendors assigned to a sales representative. This value should not be summed across the transactions (since it has already been aggregated)
Vendor Distance	Numeric	Measure	Distance from the vendor location to our selling facility
Vendor Rating	Numeric	Measure	Subjective evaluation, from 0% to 100%, representing the potential value of a customer (vendor) for insight Toy.
Vendor Satisfaction	Numeric	Measure	Satisfaction of the customer (vendor) based on a marketing survey. From 0% to 100%.
xyFacility City Lat	Numeric	Measure	Latitude of the city where the selling facility is located
xyFacility City Lon	Numeric	Measure	Longitude of the city where the selling facility is located
xyFacility Continent Lat	Numeric	Measure	Latitude of the continent where the selling facility is located
xyFacility Continent Lon	Numeric	Measure	Longitude of the continent where the selling facility is located
xyFacility Country/Region Lat	Numeric	Measure	Latitude of the country where the selling facility is located
xyFacility Country/Region Lon	Numeric	Measure	Longitude of the country where the selling facility is located
xyFacility Lat	Numeric	Measure	Latitude where the selling facility is located
xyFacility Lon	Numeric	Measure	Longitude where the selling facility is located
xyFacility State/Province Lat	Numeric	Measure	Latitude of the state where the selling facility is located
xyFacility State/Province Lon	Numeric	Measure	Longitude of the state where the selling facility is located
xyManufacturing Facility Lat	Numeric	Measure	Latitude where the manufactory facility is located
xyManufacturing Facility Lon	Numeric	Measure	Longitude where the manufactory facility is located
xyVendor Lat	Numeric	Measure	Latitude where the vendor is located
xyVendor Lon	Numeric	Measure	Longitude where the vendor is located

## **Assessment 2 - Business Analytics Project**

### **Part 1: Analytics Reports (50%)**

Business intelligence (BI) reports are very important communication tools in managerial decision-making and are targeted to a variety of audiences that include accountants, finance professionals, marketers, salespeople, product managers, among others. The relevance, utility and timeliness of presented information are critical for effective and efficient decision-making.

#### **Business Case:**

You are the manager of the business intelligence department at Insight Toys Corporation, one of the world's largest toy manufacturers with operations across the globe. As a member of cross-functional committee, three departments managers have asked you for help in developing a case study (a visual story line) that will help the executive team for better and faster understanding of the presented information. They want to go over some facts about current business performance and then use that data to collectively make the case for a new strategy. The managers are not sure what type of data/numbers will ultimately be used, and therefore, they have asked you to make the business report as **flexible** as possible in order to **allow for further explorations**, e.g., filtering, slicing and dicing.

You are to create three interactive analytics reports for the manager of the following departments:

1. Finance managers need to monitor continuously the sales in each country, including revenues and profitability. (10%)
2. Product Line managers want to check vendor satisfaction, market penetration, costs and revenues per product. (10%)
3. Customer Relationship managers want to check vendor satisfaction and rating in each country, but also the performance of their sales representatives. (10%)

#### **Please note:**

- Use at least six different Objects from Tables, Graphs, Controls, Analytics, Containers and Content provided by SAS Visual Analytics.
- Decide on the appropriate visualization tool/type to use based on the data you choose, and information you intend to portray. How will these charts be perceived by a non-technical user? What questions he/she may ask and answer with it? (10%)
- Make use of additional tools/functions such as global and local filters, text inputs, text content displays and images. (10%)
- Your final BI report should be **submitted as a recorded presentation** (5 minutes max.)

### **Part 2: Investigation (50%)**

You are to write a short research report (maximum 1500 words) on

“Critically evaluate the role of big data and business analytics in supporting business decision-making and gaining competitive advantage.”

for one of the following sectors:

- Social Media Services
- Online Retail Business / Online Services Business
- Human Resources Management
- Banking and Financial Management
- Automotive (e.g. cars, planes, ships, rails, drones)
- Transports Logistics (e.g. aviation, shipping, rails, trucking, pipelines, warehousing, postal)
- Manufacturing
- Hospitality (e.g. hotels, restaurants, catering)
- Retail (Bricks and Mortar)
- Utility (e.g. electricity, water, gas)
- Energy (e.g. hydro, coal, solar, wind, biomass, gas, nuclear)
- Risks Management (e.g. insurance, any security)
- Real Estate, Building and Construction Management
- Infrastructure Management
- Healthcare