



XN Project Individual Contribution
Integrated Experiential Learning

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INDIVIDUAL CONTRIBUTION TO THE GOLDSRING CONSULTING

1. DATA CLEANING AND DATA PREPARATION
2. EDA
3. DEVELOPED DASHBOARDS
 - SPENDING ANALYSIS
 - SPENDING VS SAVING ANALYSIS
 - DOMESTIC AND INTERNATIONAL ANALYSIS
BASED ON SEGMENT
4. BUSINESS QUESTIONS
5. TIME SERIES ANALYSIS BASED ON AIRLINES AND
COUNTRY
6. MAP VISUALIZATION ON SPENDING, SEGMENTS
AND SAVINGS



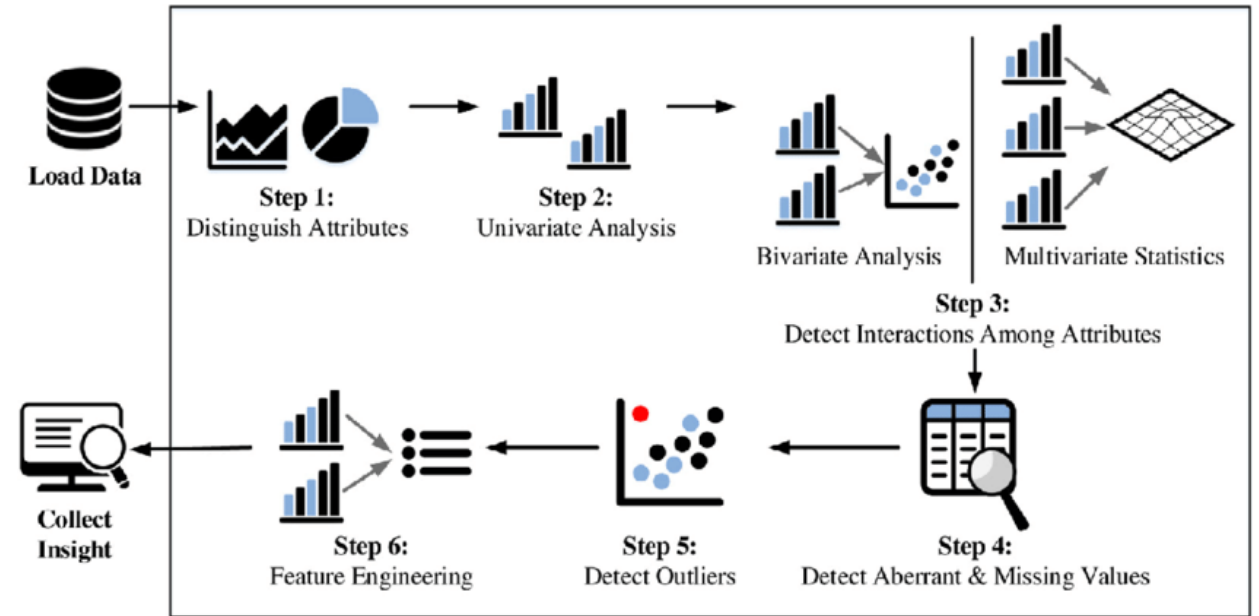
Introduction –Gold Spring

The company offers consulting services in strategy, purchasing, execution, and systems integration to ensure the success of its travel industry customers. The organization's experts in the sector use exclusive benchmarking and analytical techniques to provide distinctive, individualized solutions to customers who want to enhance their business trip and meeting schedules.



Data Preparation

- I. Load Data
- II. EDA analysis
- III. Diagnose architecture.
- IV. Business Analysis
- V. Extraction of missing data
- VI. Detect Null values and outliers
- VII. Visualization



Business Questions

- I. What is the ratio of current expenses to those that are coming up?
- II. How much more money is spent abroad than at home by each nation?
- III. Which flying classes provide the highest rates of savings?
- IV. What are the costs connected with each flight segment and how many there are in each region?
- V. What is the breakdown of monthly costs by nation?



Exploratory Data Analysis

1. We performed EDA on the data from the provided excel sheet, and we cleaned the data directly in Excel for the variables we wanted to include in our dashboard.
2. In order to sustain the accuracy of the final computed values, the null spaces containing numerical values have been changed to 0.
3. We learned from the EDA that in order to answer the business issue put forth, we would need to interact with regions, airlines, expenditures, and sectors.
4. With the sheets that would aid in our interpretations, we created another excel sheet and cleaned the data for the intended result.

CONCEPTUAL DATA ANALYSIS WITH TABLEAU



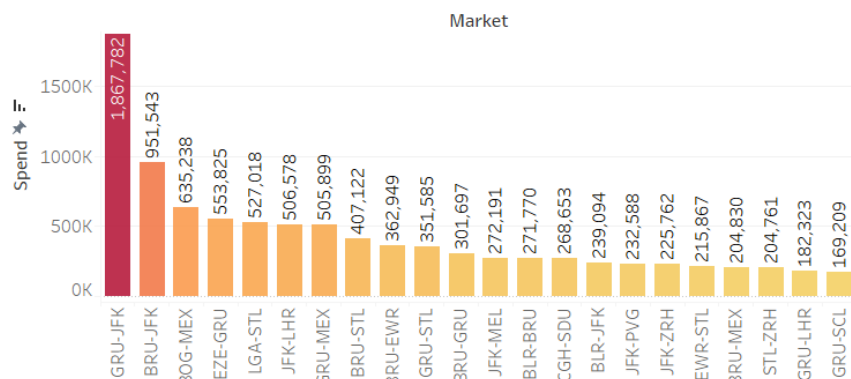
Competitive States (Dashboard on Next Slide)

- The highest money was spent in this competitive market between Sao Paulo International Airport and New York Kennedy, totaling almost \$1.8 million with a cumulative 4.4% cover, while Santiago-Arturo Merino Benitz and Sao Paulo had the lowest amount spent, totaling more than \$169k with the cumulative of 27.5%
- The airports in terms of the market segment Sao Paulo-Congonhas and Rio de Janeiro-Dumont, where over \$268K is spent with a segment of 1736 and a cumulative 22.5%, and Melbourne-Tullamarine - New York-Kennedy, where just 46 market segments with a frequency of 21.2%.
- The pie chart shows that the competitive market has the highest level of spending (47.06%), while the highly competitive market has practically the lowest level of spending (17%) and the uncompetitive market has the lowest level of spending (14%).

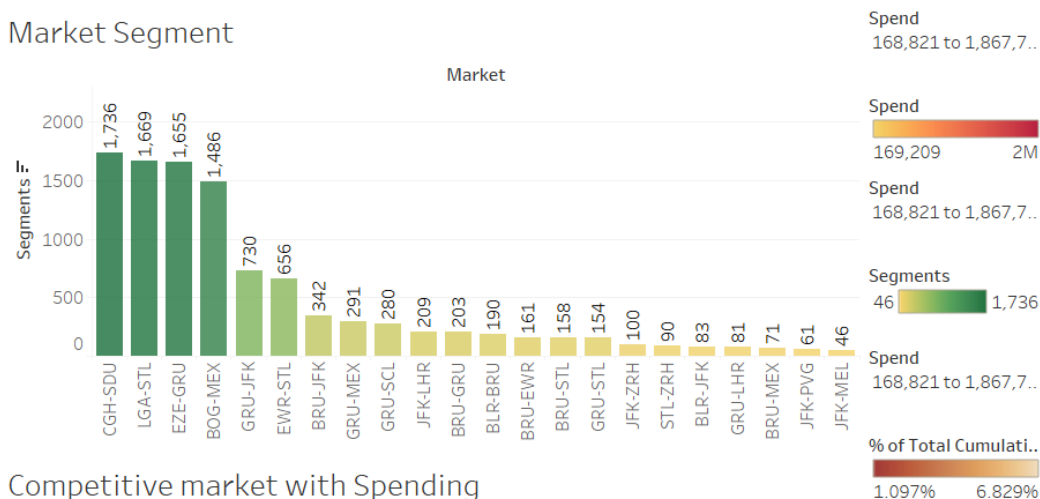
COMPETITIVE STATES WITH CUMULATIVE SPENDING AND SEGMENT

Competitive States

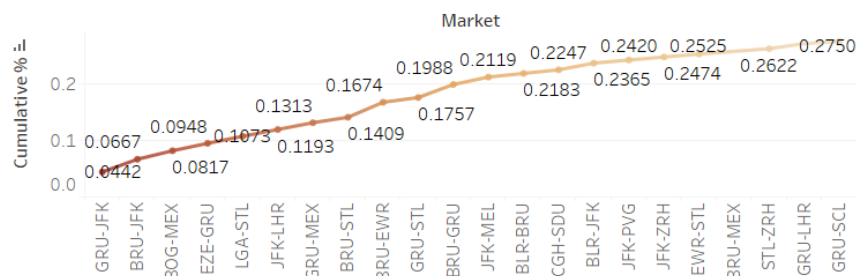
Market Spendings



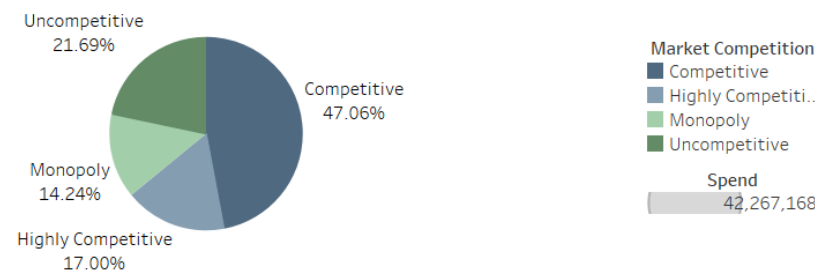
Market Segment



Market with Cumulative %



Competitive market with Spending

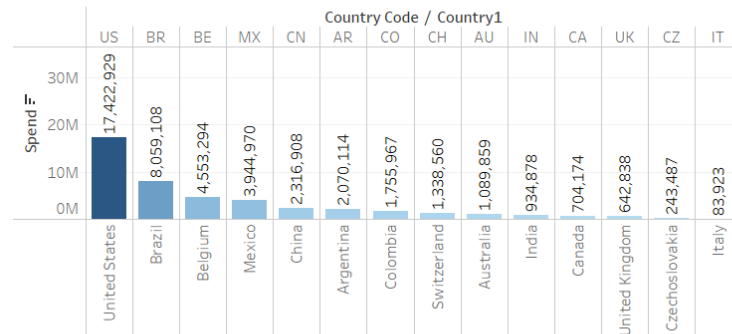


The trend of sum of Cumulative % for Market. Color shows % of Total Cumulative %. The marks are labeled by sum of Cumulative %. The data is filtered on sum of Spend and Market Competition. The sum of Spend filter ranges from 168,821 to 1,867,781.68. The Market Competition filter keeps Competitive and Highly Competitive.

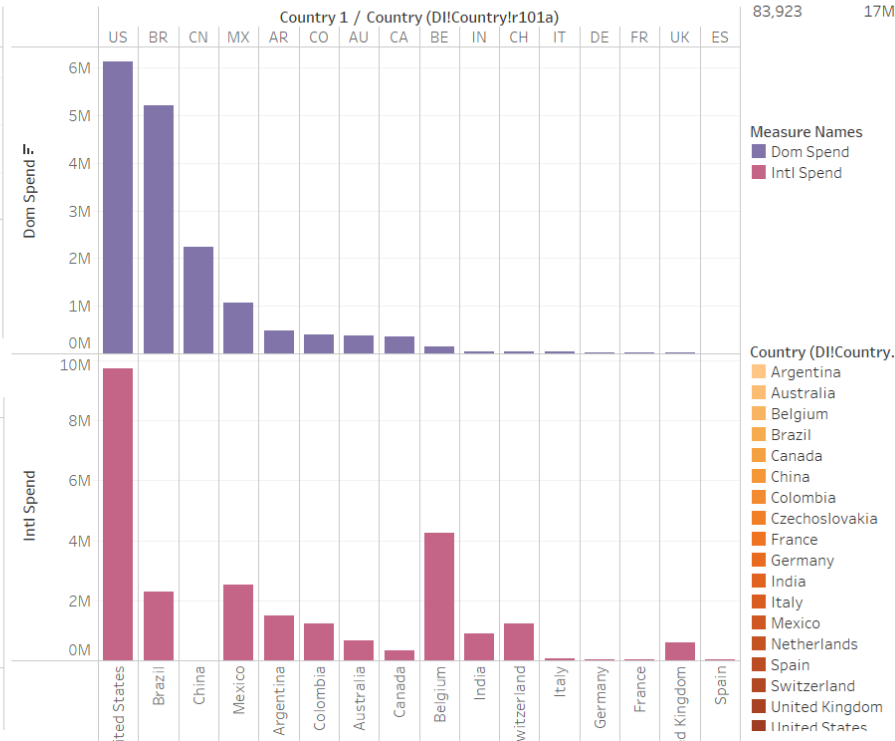
In terms of both international and domestic spending, how much does each domestically spend internationally overall?

Domestic and International Spending and Segments

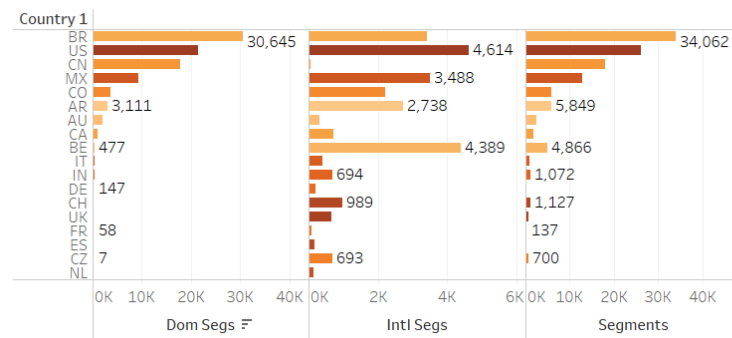
Country Spending



Dom & Intl Spend



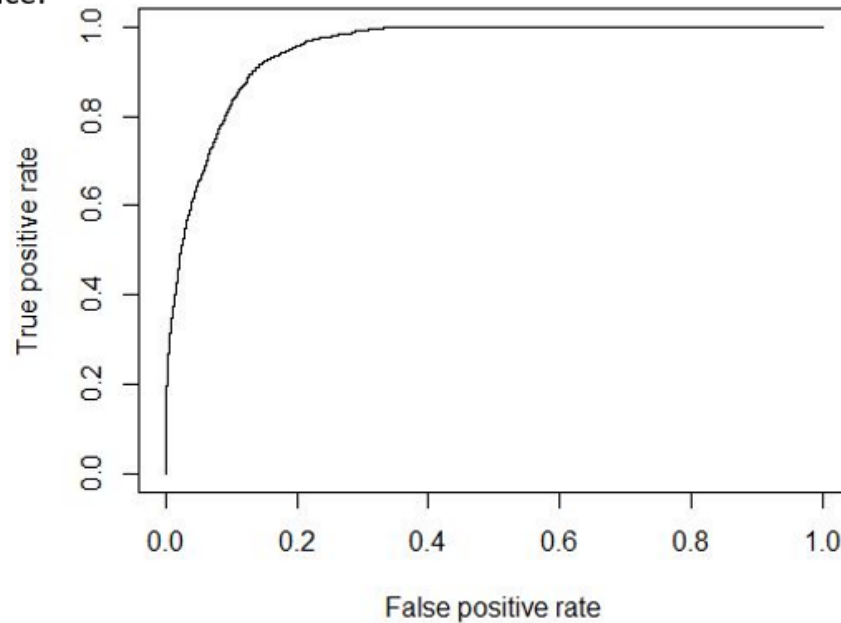
Doms&Intl Segs



- The graphs display global spending totals. The domestic spending is shown on the chart by a line graph, while the foreign spending is represented on the chart by bar plots. The United States is the country with the largest domestic travel expenses, while the Netherlands has the lowest. The United States has the largest international travel expenditures, while China has the lowest expenditures.

Regression Model (Teamwork)

The data of this model comes from the market table. I use dummy variables to change the average ticket price into whether it is too high or too low. This model can be used to determine whether the price is too high when the destination and origin are determined. In the graph, you can see the top 10 origin and destination prices. The accuracy of this model is 89.46%, which means that this model has a high prediction accuracy and can provide users with a more accurate guide price.



Confusion Matrix and Statistics

Prediction \ Reference	0	1
	0	1
0	4318	350
1	238	675

Accuracy : 0.8946
95% CI : (0.8863, 0.9026)
No Information Rate : 0.8163
P-value [Acc > NIR] : < 2.2e-16

Kappa : 0.6331

McNemar's Test P-value : 4.704e-06

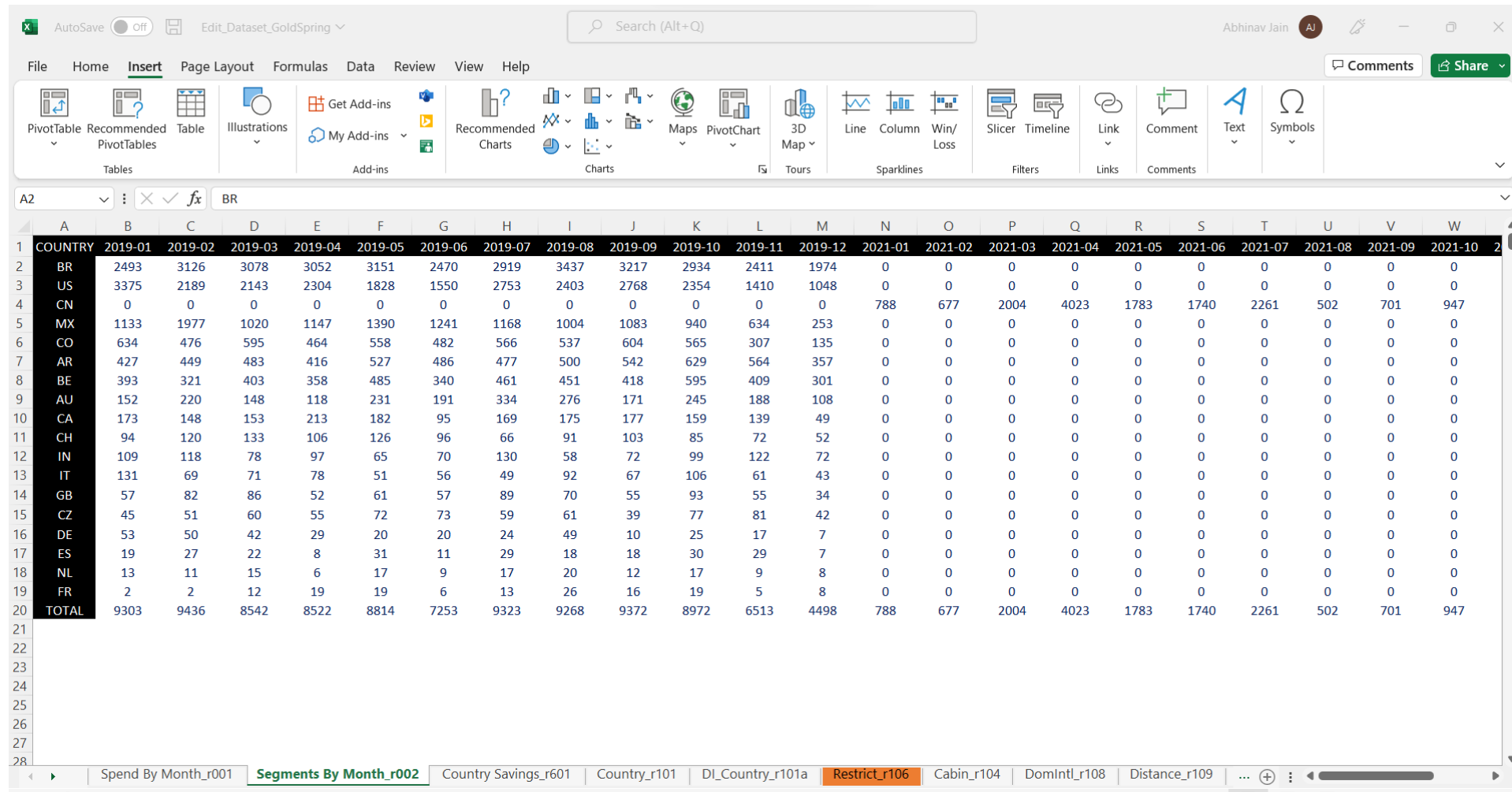
Sensitivity : 0.6585
Specificity : 0.9478
Pos Pred value : 0.7393
Neg Pred value : 0.9250
Prevalence : 0.1837
Detection Rate : 0.1209
Detection Prevalence : 0.1636
Balanced Accuracy : 0.8031

'Positive' class : 1

EDA Analysis and a few visualizations

(Extra Work on the GoldSpring Dataset)

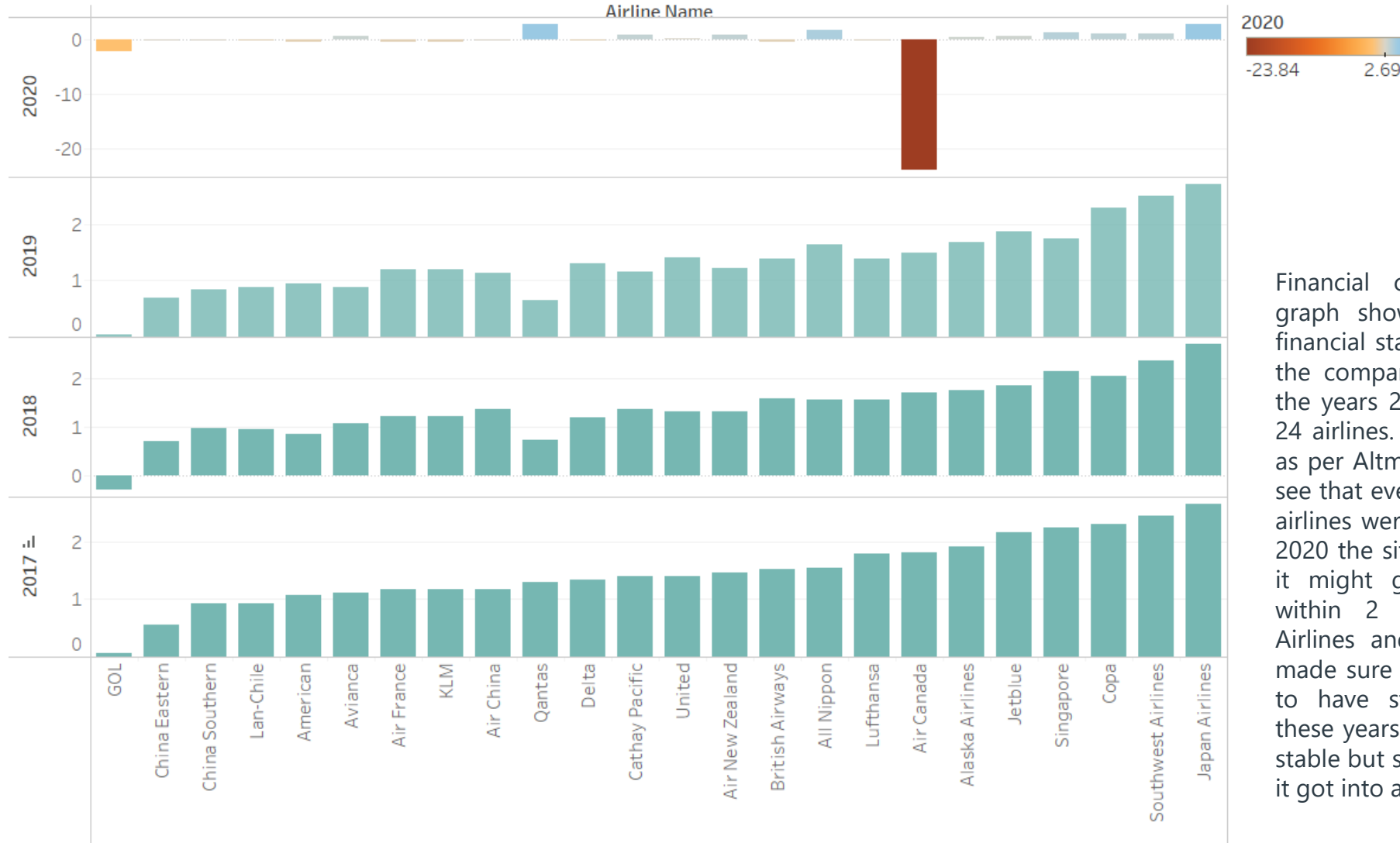
Created New Excel to connect the variables for visualization on Tableau



The screenshot displays an Excel spreadsheet titled "Edit_Dataset_GoldSpring". The ribbon includes tabs for File, Home, Insert, Page Layout, Formulas, Data, Review, View, and Help. The Insert tab is active, showing options for PivotTable, Recommended PivotTables, Table, Illustrations, Get Add-ins, My Add-ins, Recommended Charts, Maps, PivotChart, 3D Map, Line, Column, Win/Loss, Slicer, Timeline, Link, Comment, Text, and Symbols. The spreadsheet shows a dataset of country savings from 2019 to 2021. The columns are labeled with years from 2019-01 to 2021-10. The rows are labeled with country codes (BR, US, CN, MX, CO, AR, BE, AU, CA, CH, IN, IT, GB, CZ, DE, ES, NL, FR) and a TOTAL row. The data is organized in columns for each year and rows for each country, with a total row at the bottom.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	COUNTRY	2019-01	2019-02	2019-03	2019-04	2019-05	2019-06	2019-07	2019-08	2019-09	2019-10	2019-11	2019-12	2021-01	2021-02	2021-03	2021-04	2021-05	2021-06	2021-07	2021-08	2021-09	2021-10
2	BR	2493	3126	3078	3052	3151	2470	2919	3437	3217	2934	2411	1974	0	0	0	0	0	0	0	0	0	0
3	US	3375	2189	2143	2304	1828	1550	2753	2403	2768	2354	1410	1048	0	0	0	0	0	0	0	0	0	0
4	CN	0	0	0	0	0	0	0	0	0	0	0	0	788	677	2004	4023	1783	1740	2261	502	701	947
5	MX	1133	1977	1020	1147	1390	1241	1168	1004	1083	940	634	253	0	0	0	0	0	0	0	0	0	0
6	CO	634	476	595	464	558	482	566	537	604	565	307	135	0	0	0	0	0	0	0	0	0	0
7	AR	427	449	483	416	527	486	477	500	542	629	564	357	0	0	0	0	0	0	0	0	0	0
8	BE	393	321	403	358	485	340	461	451	418	595	409	301	0	0	0	0	0	0	0	0	0	0
9	AU	152	220	148	118	231	191	334	276	171	245	188	108	0	0	0	0	0	0	0	0	0	0
10	CA	173	148	153	213	182	95	169	175	177	159	139	49	0	0	0	0	0	0	0	0	0	0
11	CH	94	120	133	106	126	96	66	91	103	85	72	52	0	0	0	0	0	0	0	0	0	0
12	IN	109	118	78	97	65	70	130	58	72	99	122	72	0	0	0	0	0	0	0	0	0	0
13	IT	131	69	71	78	51	56	49	92	67	106	61	43	0	0	0	0	0	0	0	0	0	0
14	GB	57	82	86	52	61	57	89	70	55	93	55	34	0	0	0	0	0	0	0	0	0	0
15	CZ	45	51	60	55	72	73	59	61	39	77	81	42	0	0	0	0	0	0	0	0	0	0
16	DE	53	50	42	29	20	20	24	49	10	25	17	7	0	0	0	0	0	0	0	0	0	0
17	ES	19	27	22	8	31	11	29	18	18	30	29	7	0	0	0	0	0	0	0	0	0	0
18	NL	13	11	15	6	17	9	17	20	12	17	9	8	0	0	0	0	0	0	0	0	0	0
19	FR	2	2	12	19	19	6	13	26	16	19	5	8	0	0	0	0	0	0	0	0	0	0
20	TOTAL	9303	9436	8542	8522	8814	7253	9323	9268	9372	8972	6513	4498	788	677	2004	4023	1783	1740	2261	502	701	947

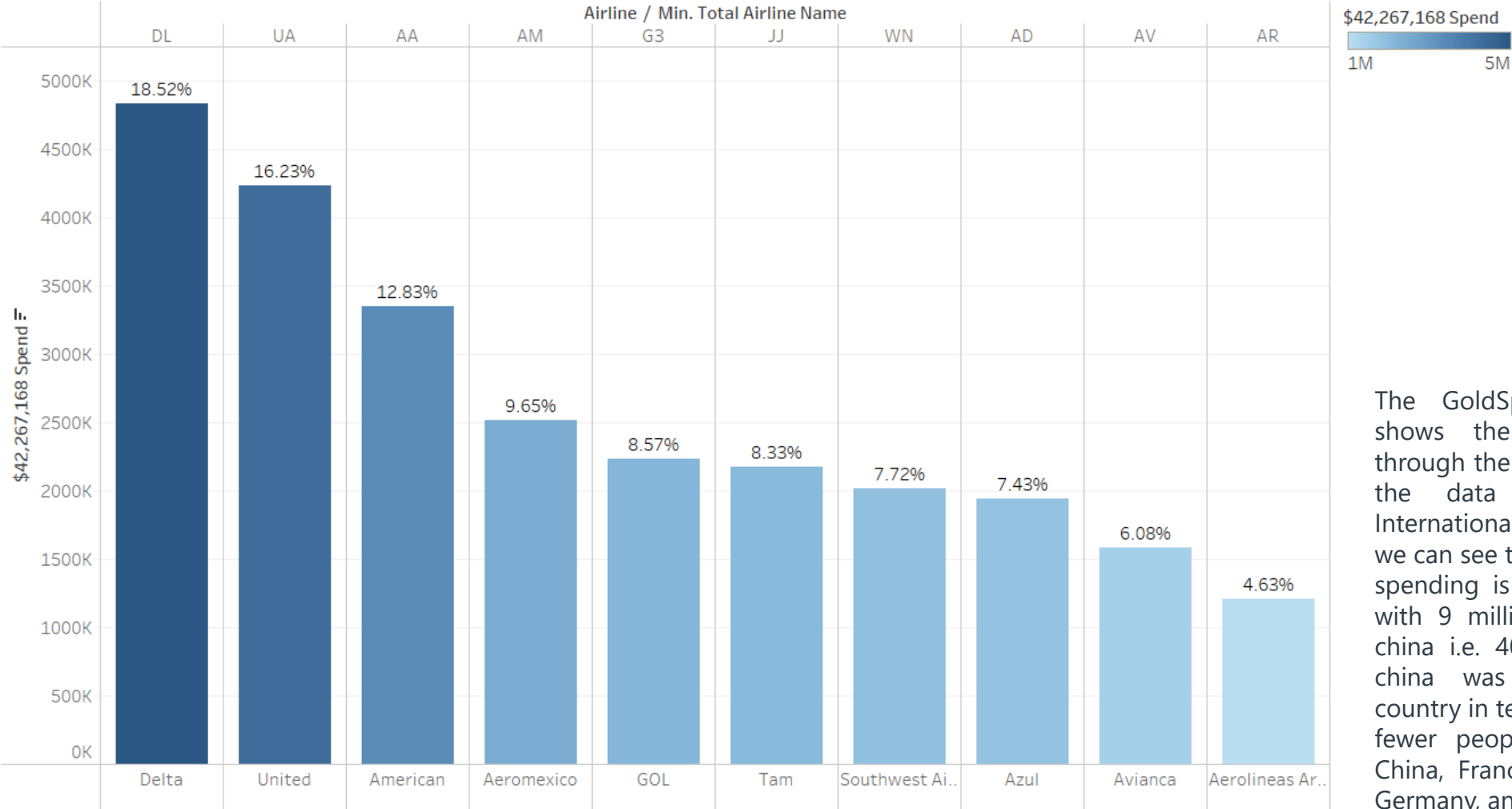
Financial Crises from 2017-2020



Financial crises 2017-2020: The graph shows the comparison of financial statements of the airlines, the comparison is made between the years 2018 and 2020 between 24 airlines. The data was collected as per Altman's rating, and we can see that even in the year 2018 GOL airlines were in a loss, and even in 2020 the situation is the same and it might go into financial crisis within 2 years, whereas Japan Airlines and Qantas airlines have made sure pre and post-pandemic to have stable finance all over these years. Whereas Air Canada was stable but suddenly post-pandemic it got into a huge loss.

Sum of 2020, sum of 2019, sum of 2018 and sum of 2017 for each Airline Name. For pane Sum of 2020: Color shows sum of 2020. The view is filtered on Airline Name, which keeps 24 of 190 members.

Airline Spendings



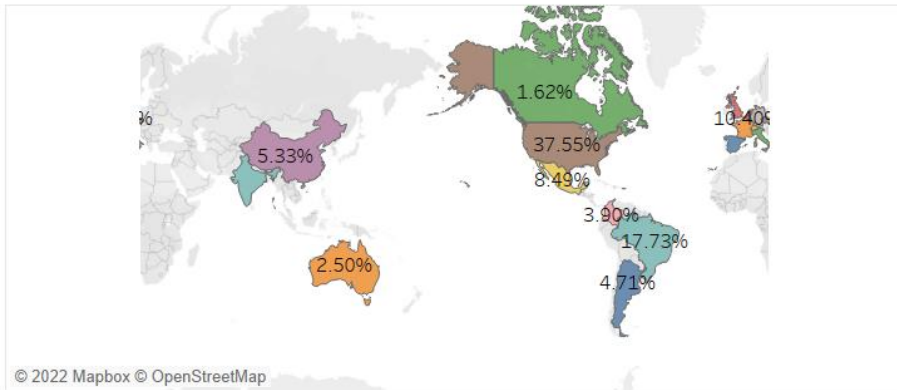
Sum of \$42,267,168 Spend for each minimum of Total Airline Name broken down by Airline. Color shows sum of \$42,267,168 Spend. The marks are labeled by % of Total \$42,267,168 Spend. The data is filtered on Total Airline Name, which keeps 10 of 190 members. The view is filtered on Airline, which keeps 10 of 190 members.

The GoldSpring company data shows the above visualization through the tableau Dashboard. As the data contain both the International and domestic market, we can see that most of our market spending is for the United States with 9 million and the lowest is china i.e. 4006. We can see that china was the most affected country in terms of travel spending, fewer people want to travel to China, France, Spain, Netherlands, Germany, and Italy.

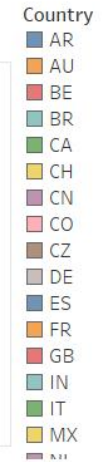
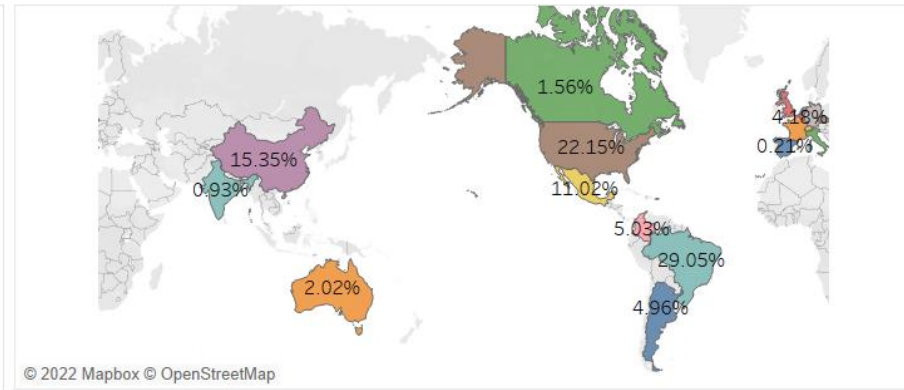
SPEND AND SEGMENT WITH SAVINGS

Spend & Segs with Savings

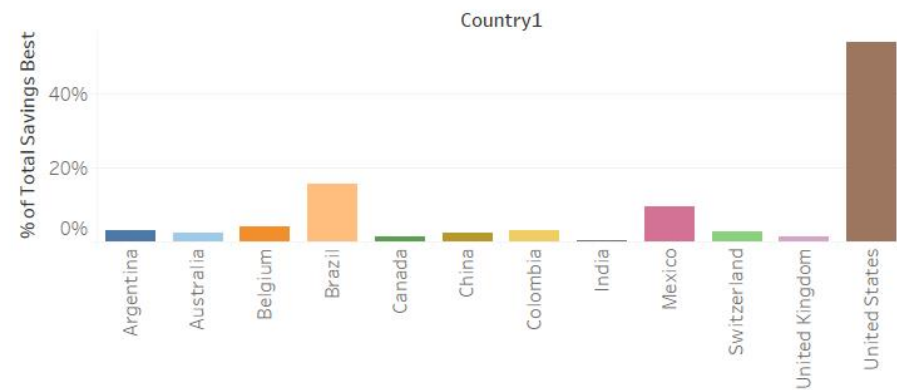
Spend by Month



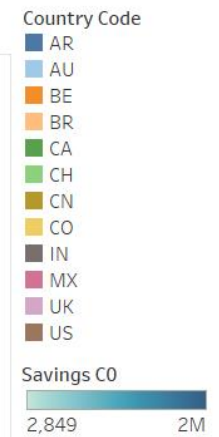
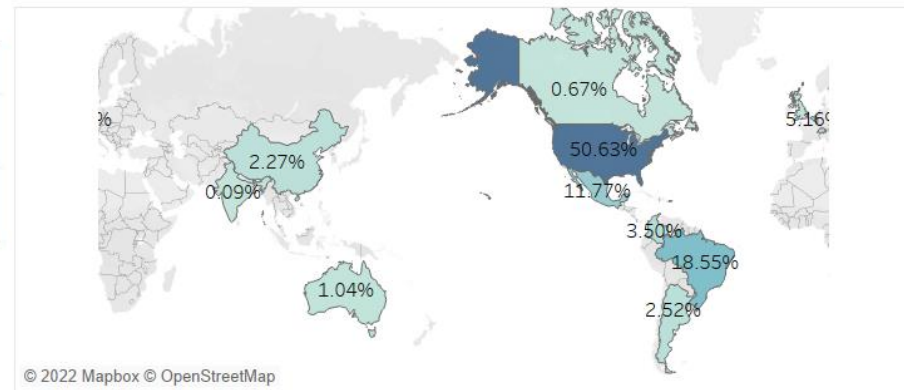
Spend by Month



Best Savings



Country savings



Conclusion

- The highest money is spent by airlines flying both domestically and internationally from the United States.
- We are aware that, in terms of flying seats, business class comes in second with the most discounts.
- In travel industry the impact majorly of COVID in 2019, started gaining the market from 2021
- Mostly Latin America area and the northe America refion has the highest segment and spending respectively.

Annotated Bibliography (Article 1)

Author, Francois Bedard (January 2005). Case Study of the Successful Strategic Transformation of a “Bricks and Mortar” Travel Agency into a “Clicks and Mortar” Business Lessons Learned from a Small, Independent Travel Agency in Canada

According to Bedard F., a strategy for business transformation through technology will make it simpler to address business issues. It exemplifies how technology will significantly impact the services, improving the operation and resolving present challenges. It creates fresh momentum while restructuring the organization. Client focus, the inability to generate novel ideas owing to antiquated systems, the difficulty of competing, the inability to exploit information due to talent limits, and the employment of antiquated business tactics were the company's core problems.

These and other factors prevent a corporation from doing better in the age of modern technologies. Travel agencies required the implementation of new technology to find better solutions in the modern era of data analytics. Owners of independent travel agencies with "bricks and mortar" and "clicks and mortar" locations contacted the consulting staff for free advice after watching for two years as they made strategic adjustments for their businesses. In 2001, Bedard made the argument that adopting new technology will drive corporate growth and a change in services for the happiness of the customer through staff training, the installation of new technology, and the application of new technology. I advise using this strategy to analyze data using real-time information to direct digital solutions in diverse directions. Both authors and business owners find good connections for the transformation.

Annotated Bibliography (Article 2)

“Author, M. Common, T.Bull and N. Stoekl (1994). The Travel Cost Method: An Empirical Investigation of Randall’s Difficulty”

In this article, the case can be made that the Travel Cost Method (TCM) generates more accurate estimates than other methods of valuation, such as the contingency valuation approach (CVM). The explanation is that TCM results are produced using actual of data as opposed to fake data. With these findings towards the approach of the travel cost method, they use the linear model with standing difficulty of Randall’s, where the Ordinary least square (OLS) regression is a suitable estimate method. The Gold Spring also divides the distance into the zone to get the most effective results for the analysis. The monte Carlo approach they have used for visiting the different zones. This is a widely adopted ad hoc means of dealing with a problem for which theory provides no clear answer. Let’s discuss an instance, where a 7-day vacation to Monaco costs, on average, \$1,719 for a single traveler, \$3,087 for a couple, and \$5,788 for a family of four.

The average nightly rate for hotels in Monaco is \$210, while the range for full-home holiday rentals is typical \$200 to \$420. If the sponsor also gets this approach for maintaining the pace to increase the adaptability of the Travel Cost Method, it will help the company to perform better in many areas. To calculating the excess of consumers, the results of these Monte Carlo simulations are now taken into account, together with the effects of using alternative criteria for evaluating trip expenses. There are several purposes for using this tactic. Of course, economists utilize a variety of research methods to provide data that must be properly examined. The TCM is only one of them. Changes must be done in order to offer better services and enhance real travel behavior.

Annotated Bibliography Article(3)

“Mrs. Judith KOEBERL (JR), Andrea DAMM (JR), Elisa JIMENEZ ALONSO (ACC). Market Research for a Climate Services Observatory, Tourism4

Instead, it includes a range of businesses, such as those providing housing, food and drink services, transportation, entertainment and entertainment, and tourism. It is challenging to put a dollar figure on how significant the tourism sector is to an economy because it is not recognized as a sector in national accounting. These are the kinds of services that GoldSpring Consulting should offer so that travelers have a variety of options. MARCO The MARCO provider database is a list of Austrian organizations that provide climate services to the travel and tourism sector. One of these falls under "Public Climate Service Centers," two under "SME," and ten fall under the category of "University or Research Performing Organizations." Only one of these organizations' main activity is computer science. The 13 organizations focus on four categories of climate services: "Advisory services, risk assessments, and decision-support tools," "Data management, including scaled data sets, data archiving, and data certification," "Processed data, such as re-analysis," and "Publications, e.g., formulation and assessments, guidance documents, manuals." There is still need for innovative services that can adapt complex, complex, and detailed results to the needs and preferences of AWST decision-makers.

Winter tourism stakeholders cannot typically evaluate or interpret climate data. Tourism is limited since many of them lack the necessary temporal resources and advanced knowledge for interpreting climatic data. As a result, intermediaries are required to prepare the climate data in a way that the stakeholders may use it simply. Actions can improve the connection between research and possible end users. This may also entail convincing travel consultants to serve as information providers about the climate, i.e., to include climate information in their service offerings. They are fluent in the stakeholders' language and have a thorough awareness of their requirements. The tourism industry provides around half of the budget. To overcome financial obstacles, funding programs that specifically address adaptation and mitigation in the tourism industry may be necessary.

References:

Annotate Bibliography:

[1] “Author, Francois Bedard (January 2005). Case Study of the Successful Strategic Transformation of a “Bricks and Mortar” Travel Agency into a “Clicks and Mortar” Business Lessons Learned from a Small, Independent Travel Agency in Canada”

[2] “Author, M. Common, T.Bull and N. Stoekl (1994). The Travel Cost Method: An Empirical Investigation of Randall’s Difficulty”

[3] “Mrs. Judith KOEBERL (JR), Andrea DAMM (JR), Elisa JIMENEZ ALONSO (ACC). Market Research for a Climate Services Observatory, Tourism

[4] 4 Types of Data Analytics to Improve Decision-Making
<https://online.hbs.edu/blog/post/types-of-data-analysis>

[5] Data Collection: Methods, Challenges and Key Steps
Stedman & McLaughlin
<https://www.techtarget.com/searchcio/definition/data-collection>

A series of white, thin, overlapping geometric lines and polygons on a black background, located on the left side of the slide.

THANK YOU