



Business Report of Data Visualization & Analysis

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Activity 1: Storyboard: Technary Case Study and Data Analysis

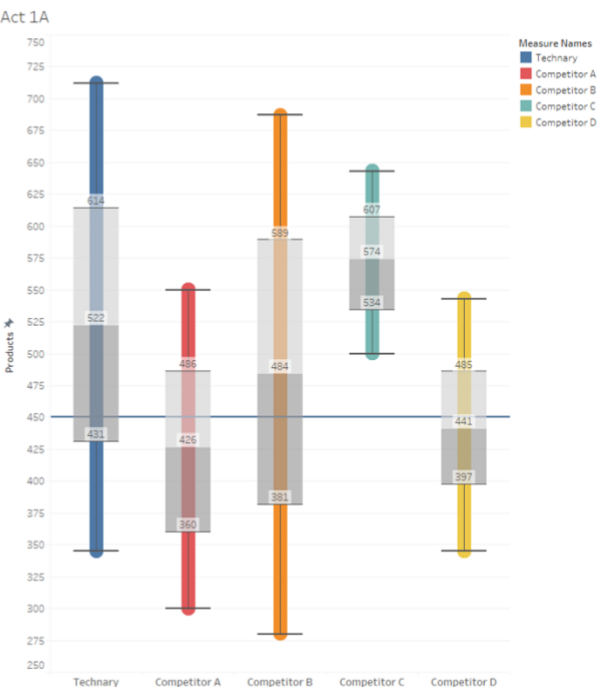
Creating a Competitive Advantage in the Manufacturing of Product X: A Case Study of Technary

PRODUCT ANALYSIS

In this scenario, we are examining the weights of Product X across different companies to evaluate their precision and accuracy. The target weight for Product X is 450 units, but differences in machine efficiency can result in varied weights.

To compare the weights produced by Technary and four other competitors, we measured and recorded the weights of 1000 products from each company within an hour. We will use a boxplot to visualize and compare the distribution of weights across these companies.

By analyzing these results, we can assess the quality of the machines used by each company and make informed comments on the precision and accuracy of Technary's machines compared to those of its competitors.

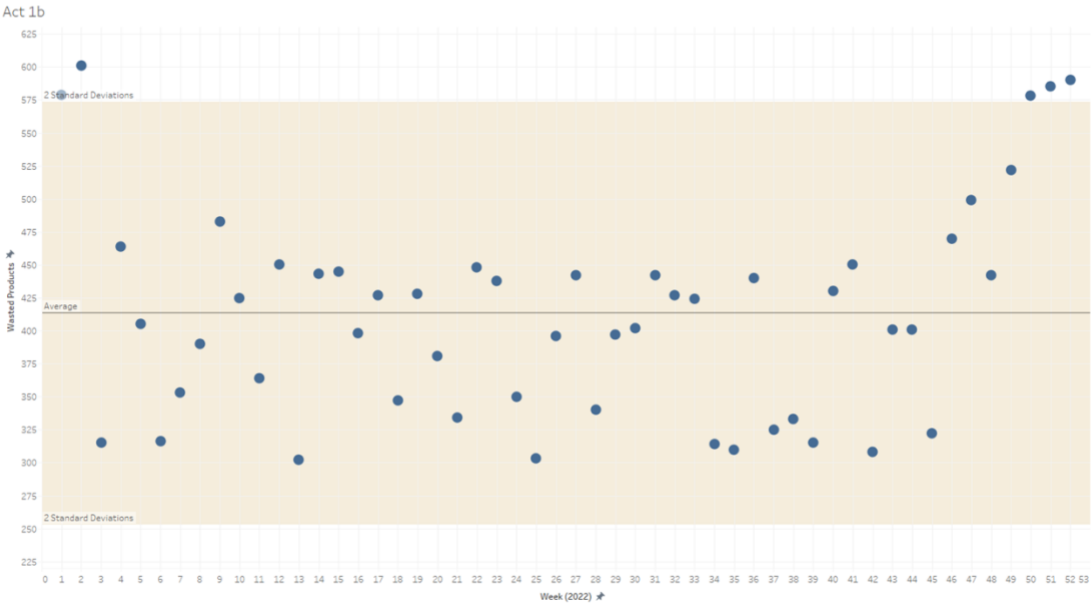


WASTAGE ANALYSIS

In this scenario, we are analyzing Technary's productivity over the course of 52 weeks (about 12 months). The average productivity is 413.3 with a standard deviation of 86.6. However, there are outliers in weeks 1, 2, 50, 51, and 52, where productivity levels fall outside of 2 standard deviations from the mean.

To gain insights into the potential causes of these outliers and identify ways to improve productivity, we will create a line chart to visualize the week-to-week productivity trends.

By analyzing the chart, we can identify patterns and potential reasons for the outliers. This will help us determine ways to enhance productivity and maintain a competitive advantage

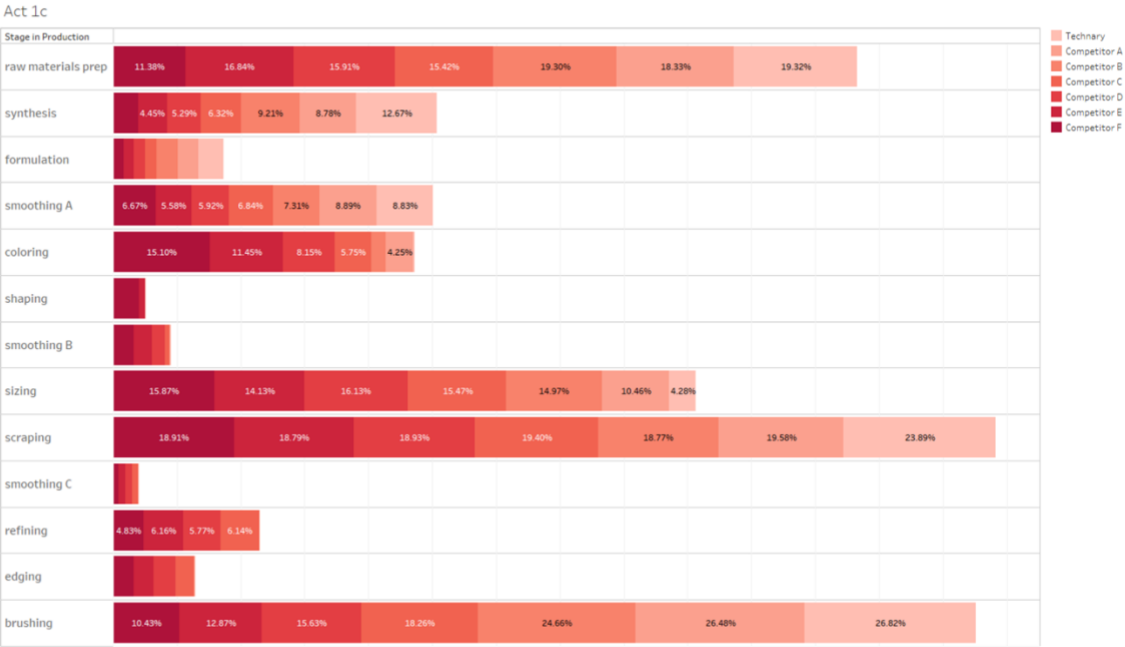


Analyzing Proportions of Materials Used in Product X Production

In this scenario, we have collected data on the proportion of raw materials used in Product X production for Technary and five of its competitors.

To visualize and compare these proportions, we will use a stacked bar chart. This chart will show the proportion of each material used by Technary and its competitors, providing a clear and concise overview of each company's production process.

By analyzing the chart, we can identify areas where Technary may need to adjust its production process to gain a competitive edge. This information will allow us to develop strategies to optimize our use of raw materials and ultimately improve the efficiency of our production process.



Innovative Strategies to Enhance Technary's Competitive Edge

The provided data suggests that Technary could benefit from implementing innovative strategies to enhance its competitive edge in the market. One potential big idea is to prioritize the improvement of production process efficiency and quality to maintain competitiveness. The insights from the data support this idea in the following ways:

- The median production time for Technary is higher than most competitors, indicating a potential need for process improvements to reduce production time.
- The fluctuating weekly production suggests that variability in Technary's production process may be affecting productivity, highlighting the need for process improvements.
- The data on raw material usage indicates that Technary may not be optimizing its production process to create a high-quality end product, which could be a disadvantage in the competitive landscape.

By focusing on improving the efficiency and quality of its production process, Technary can create a consistent and high-quality end product, which can help maintain its competitiveness in the market. This can involve implementing process improvements, optimizing raw material usage, and utilizing new technologies to enhance the overall production process.

Welcome to the Technary Resolution Landing Page!

After reviewing our data and comparing it to our competitors in activities 1a, 1b, and 1c, we have identified some areas where we need to improve our business performance.

The main conflict we have identified is that our Technary data is falling behind our competitors', which is affecting our overall performance. This was evident in activities 1a and 1c, where our data was below the median of most of our competitors.

To address this conflict, we have developed the following resolutions:

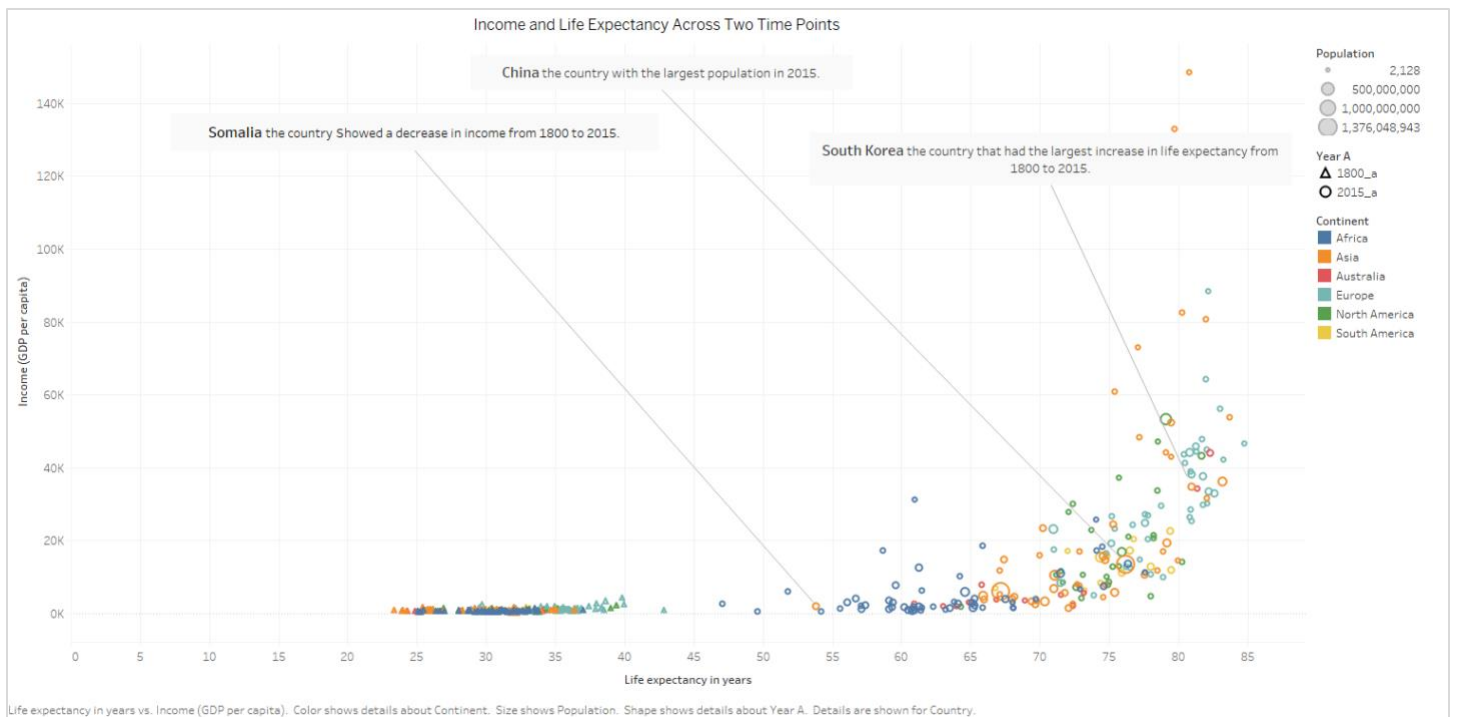
1. Improve the efficiency of our raw materials preparation process to reduce the time it takes to prepare materials for synthesis, formulation, and shaping. This will allow us to increase our production speed and output.
2. Implement a quality control program to identify and reduce waste in our shaping and refining processes. This will help us reduce our scrap rate and improve overall product quality.
3. Enhance our marketing efforts to increase demand for our products. We can do this by highlighting our unique selling points, such as our attention to detail and our commitment to quality.

By implementing these resolutions, we aim to improve our Technary data and overall business performance.

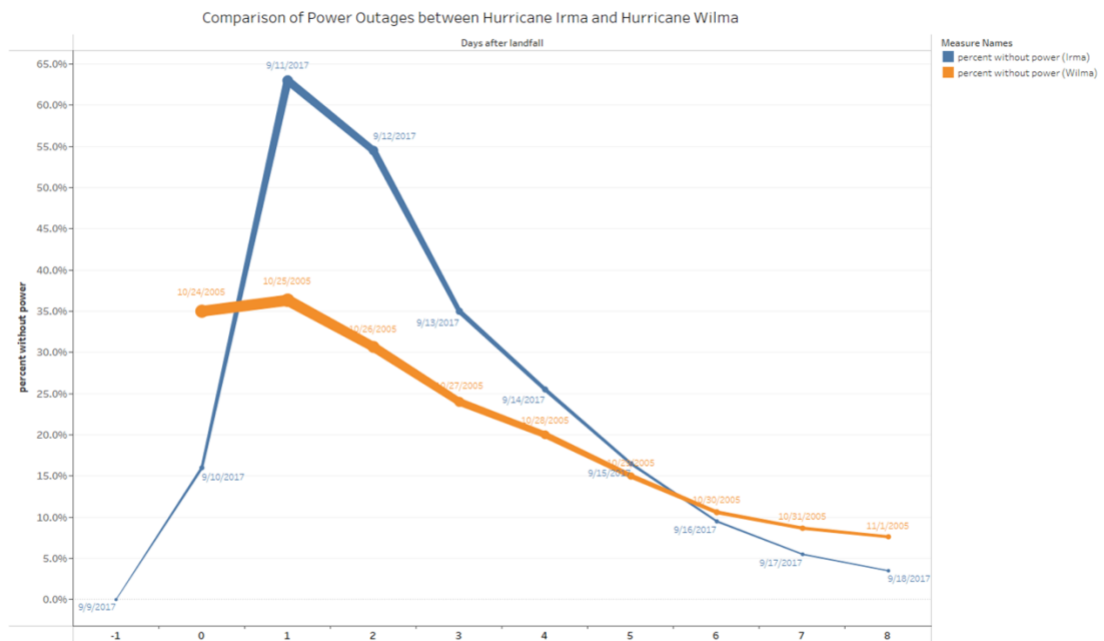
Our big idea is to become a leading manufacturer of high-quality tech products that exceed customer expectations. We believe that by improving our production efficiency, reducing waste, and increasing demand for our products, we can achieve this goal.

Thank you for visiting our Technary Resolution Landing Page. We are committed to working hard and exceeding your expectations.

Activity 2: Build the appropriate graph: Life Expectancy vs Income



Activity 3: Declutter + Gestalt Principle (Connection): Power outage Hurricane Irma/Wilma



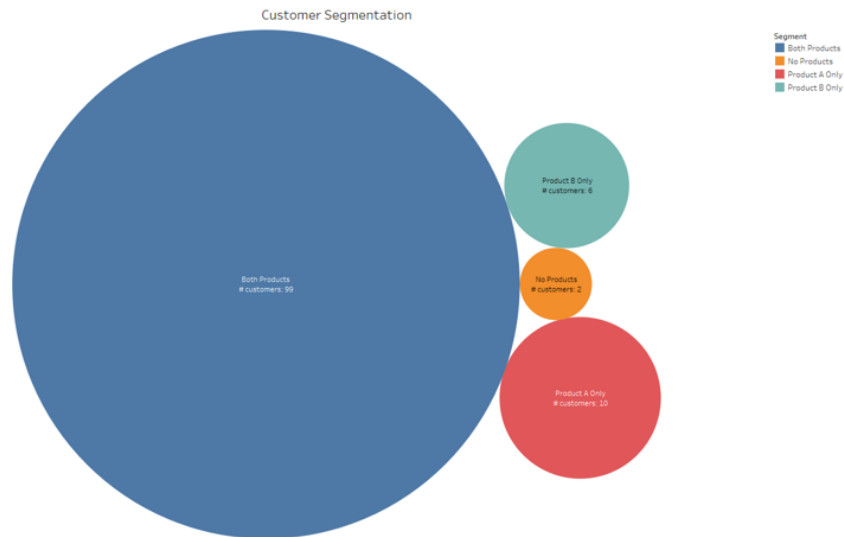
Activity 4: Gestalt Principles (Enclosure) and Preattentive Attributes (Color): CloudBoom Consulting

Customer Segmentation

When attempting to segment customers, it is essential to comprehend their patterns of ownership and usage for Product A and Product B.

The provided bubble chart illustrates these patterns over the last year. Based on the usage and ownership patterns of each product, customers are classified into four groups: those who own and utilize both products (highlighted in blue), those who own and use Product A only (highlighted in red), those who own and use Product B only (highlighted in gray), and those who do not own either product (highlighted in orange).

Utilizing the Gestalt Principle of enclosure, we can categorize the four groups using boxes with unique colors. This enables us to emphasize the significance of customer segmentation and clarify the distinctions between the groups.



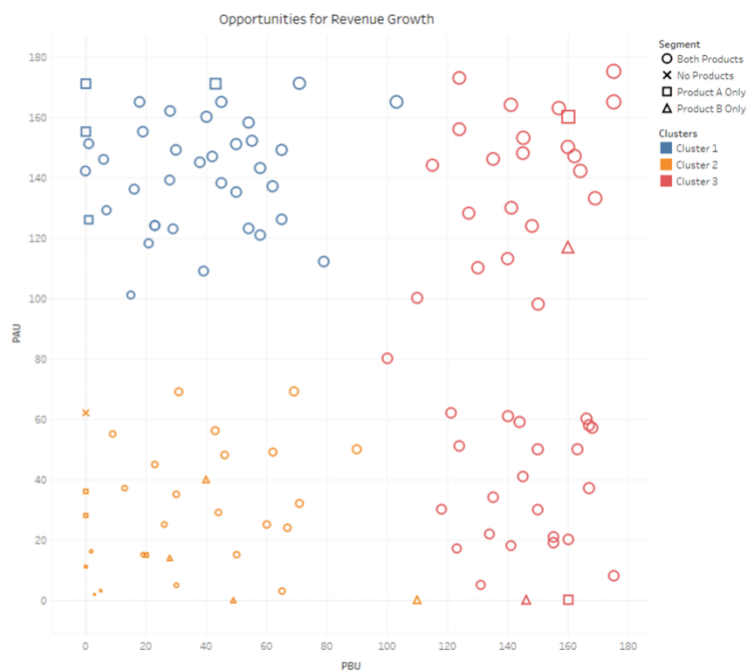
Understanding the Scatter Plot

In the preceding slide, a scatter plot was presented, depicting the correlation between PBU and PAU. The current slide aims to delve deeper into the scatter plot and explain how size and shape can offer additional information about the data.

Size: The size of the data points in the scatter plot indicates the total value of PBU and PAU for each data point. Larger points represent higher combined values of PBU and PAU, while smaller points indicate lower total values. Analyzing the size of the data points can enable us to quickly identify which data points have the highest and lowest values for PBU and PAU.

Shape: Besides size, the shape of the data points in the scatter plot conveys supplementary information about the data. Each shape indicates a separate segment, helping us understand how different groups are performing regarding PBU and PAU. By observing the shape of the data points, we can promptly recognize which segments are performing well and which are not.

In summary, size and shape of the data points can provide a compelling visual representation of the data, assisting us in promptly spotting patterns and trends. By leveraging these insights, we can make informed business decisions that facilitate growth and success.



Activity 5: Minto Pyramids and WIIFT (understanding the audience): Making the Case at Craigstone.

Preferred travel provider: Canadian Express

Situation: Craigstone is currently facing client complaints about their travel costs, and their largest client is threatening to end their relationship due to travel expenses exceeding 15% of their consulting fees. In response, the company has formed a committee to analyze their travel policies, reduce expenses, and streamline their procedures.

Conflict: The committee needs to choose between two travel providers, LanaTravel.com and Canadian Express. While both offer savings on travel for firms that book at least \$5M worth of business through them, Craigstone needs to choose the provider that will help them reduce costs and maintain their existing client relationships. The conflict is between choosing the provider with the better-designed app but only guarantees 24/7 support via chat, and the provider with a full-featured website for booking and changing travel and excellent live support but a less robust app.

Complication: The committee is tasked with choosing between two travel providers, LanaTravel.com and Canadian Express, both of which offer savings on travel for firms that book at least \$5M worth of business through them. However, the committee must determine which provider will help Craigstone reduce costs and maintain existing client relationships. The conflict is between choosing the provider with the better-designed app but only guarantees 24/7 support via chat or the provider with a full-featured website for booking and changing travel and excellent live support but a less robust app.

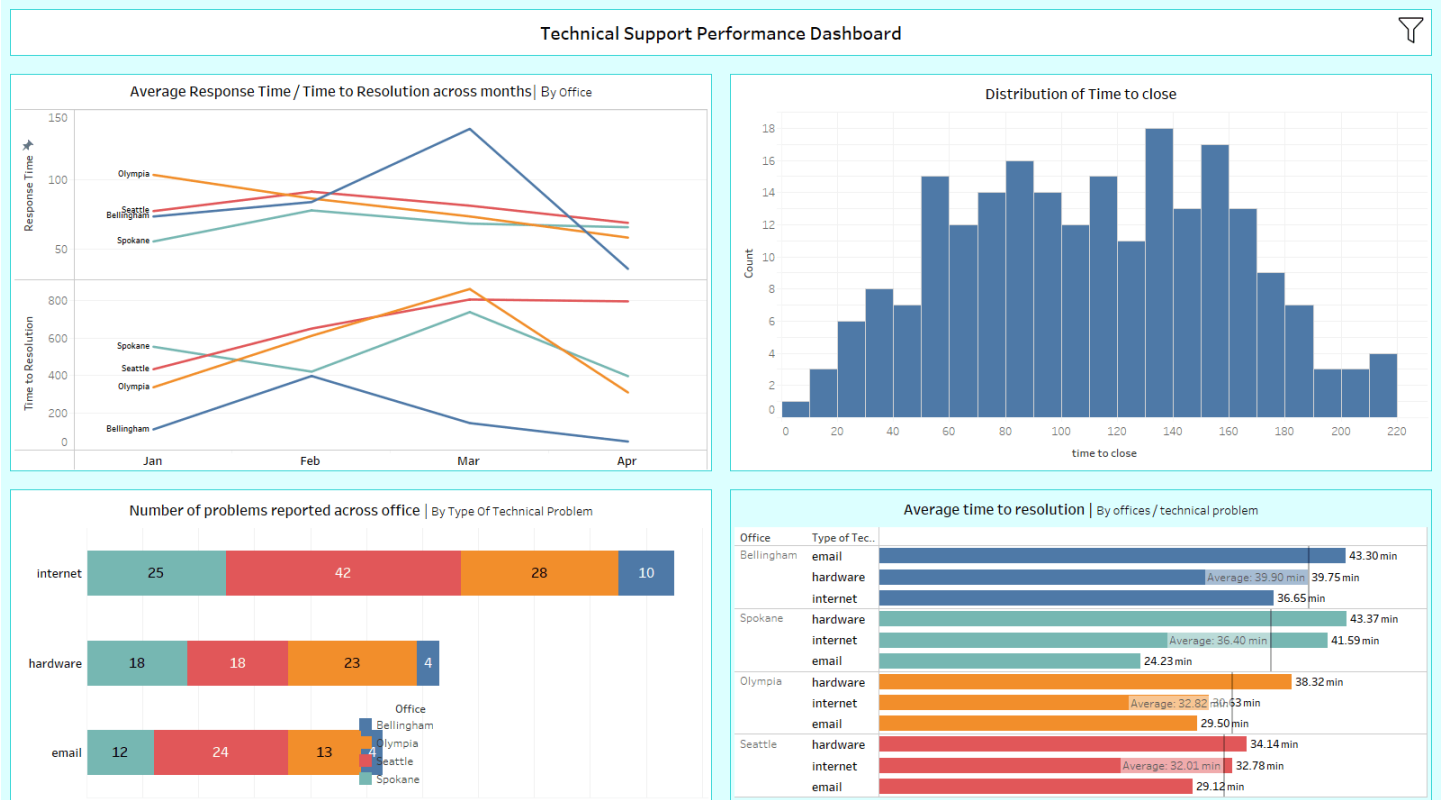
Question: Which travel provider should Craigstone choose to reduce travel expenses and maintain its existing client relationships, LanaTravel.com or Canadian Express?

Answer: Based on the analysis, the committee should recommend Canadian Express as Craigstone's preferred travel provider. Canadian Express is a well-established and reliable company that has been in business for over 170 years and is the industry standard for the world's largest consulting firms. The company offers a full-featured website for booking and changing travel and excellent live support with agents available by phone 24/7 from anywhere in the world. In addition, Canadian Express guarantees a 5% discount on travel booked through them, and Craigstone could gain an additional 1% reduction on all travel expenses charged through CanEx credit cards. Moving to CanEx cards would also automate travel reimbursements, which currently take over a month, a substantial burden on many employees.

Proof: Craigstone can save more money with Canadian Express than LanaTravel.com. Canadian Express offers a guaranteed 5% discount on travel booked through them, and Craigstone could gain an additional 1% reduction on all travel expenses charged through CanEx credit cards. Craigstone would also benefit from the automation of travel reimbursements, which currently take over a month. Craigstone needs stability and reliability in its travel provider, and Canadian Express offers just that, having been in business for over 170 years and being the industry standard for the world's largest consulting firms.

Action: The committee should recommend that Craigstone choose Canadian Express as its preferred travel provider. With Canadian Express, Craigstone can ensure stability and reliability in its travel arrangements, which is crucial to maintaining existing client relationships and adding new ones to their roster. Additionally, the company should consider adopting CanEx credit cards to gain additional savings on travel expenses and automate travel reimbursements. By selecting Canadian Express, Craigstone can reduce travel expenses while maintaining quality travel arrangements and employee satisfaction.

Activity 6: Tableau Dashboard: Technical Support Dashboard



Activity 7: TOP T Framework: Airline Traffic

Topic	Airline Traffic
Orient	<ul style="list-style-type: none"> - RPK of top 10 airlines in 2015 - Airlines ranked by RPK in billions - Length of bar shows RPK of each airline - Colors represent regions of the world
Point	The top three airlines in 2015 were American Airlines, Delta Air Lines, and United Airlines, with RPKs of 319.8 billion, 312.8 billion, and 307.9 billion, respectively.
Transition	Now that we have seen the RPKs of the top 10 airlines in 2015, let's take a closer look at the performance of these airlines in terms of revenue and profitability.


Activity 8: Audience Confusion Matrix: Demand for Elerium-128

Based on the situation described

To frame the discussion, it is important to acknowledge the original prediction that new market entrants would increase demand for Elerium-128 and drive up its price. However, the bankruptcy of the two new market entrants has had a negative impact on the market for Elerium-128, causing the price to continue to decline despite our expectations of increased demand.

Therefore, it is proposed that a thorough analysis be conducted to identify the factors that led to the incorrect demand predictions and market disruption. The insights gained from this analysis can be used to improve the company's forecasting methods and re-evaluate our strategy for managing raw material inventory. Exploring options for reducing costs while ensuring adequate supply and diversifying our supply chain with alternative sources of Elerium-128 should also be considered.

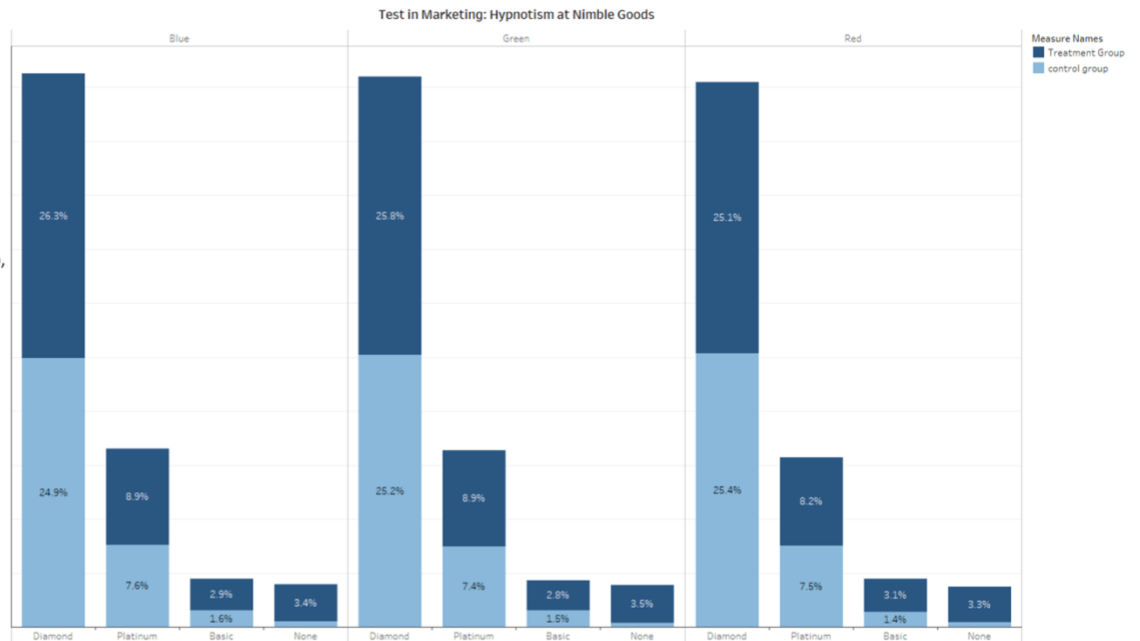
Moreover, it is important to closely monitor market conditions and adjust our strategies as needed to remain competitive and mitigate risks associated with market disruptions. Robust risk management protocols and contingency plans should be established to prepare for future market changes. The senior management team can further refine and discuss these proposed next steps.

		Audience expectation	
		No change (in ratio)	Change (in ratio)
Data observation	No change (in ratio)	<p>What's next?</p> <p>No change expected</p> <p>No change observed</p>	<p>What did you miss?</p> <p>Change expected</p> <p>No change observed</p> 
	Change (in ratio)	<p>What just happened?</p> <p>No change expected</p> <p>Change observed</p>	<p>What do we do now?</p> <p>Change expected</p> <p>Change observed</p>

Activity 9: A/B Test in Marketing: Hypnotism at Nimble Goods

Impact of Hypnosis-Based Marketing on Sales of "Benevolent Brownie"

- Carried out an A/B test to assess the impact of hypnosis-based marketing on sales of "Benevolent Brownie"
- Randomly allocated half of the customers who opted in to be hypnotized (treatment group)
- Observed a slight increase in conversion rates in the treatment group compared to the control group, but the difference did not demonstrate statistical significance.
- Therefore, we suggest being careful while implementing hypnosis-based marketing as a sales approach and suggest undertaking additional research or experiments before drawing any conclusive decisions.



A chart in the form of bars comparing the conversion rates of the treatment and control groups is displayed. The conversion rates of the treatment group are marginally higher than those of the control group.

Activity 10: Storyboard Resolution: Scientology Case Study and Data Analysis

Title: Scentologic Case Study: Analysis of Sales and Gross Profit Scenarios

Goal: To assess how four different scenarios could affect Scentologic's sales and gross profit for the next five years.

Date: February 25th, 2023

Scenario 1: Change the Device Color Shell

Big Idea: Changing the device color shell can help reduce production costs.

Resolution Landing Page: Scentologic can save \$50 per device by changing the device color shell from a metallic grey to dark grey.

Detailed Resolution:

- The change in color shell reduces the production cost from \$350 to \$300.
- The impact on gross profit over five years is an increase of \$1.6M.
- The impact on expected gross profit is 8.8%, which is a material change.

Next Steps:

- Management should consider changing the device color shell to reduce production costs and increase gross profit.

Scenario 2: Increase Advertising

Big Idea: Increasing advertising can drive increased demand.

Resolution Landing Page: Scentologic can increase advertising to drive awareness and demand.

Detailed Resolution:

- Increasing advertising spend by \$100,000 per year results in an increase in revenue of \$1.5M over five years.
- The impact on expected gross profit is an increase of 5.5%, which is a material change.

Next Steps:

- Management should consider increasing advertising spend to drive increased demand and gross profit.

Scenario 3: Change Manufacturing Locations

Big Idea: Changing manufacturing locations can increase long-term production capacity.

Resolution Landing Page: Scentologic can pilot run the device at the new manufacturing location to increase production capacity.

Detailed Resolution:

- The new manufacturing location in Detroit has greater long-term capacity to produce Scentologic's device.
- The pilot run at the Detroit factory is not expected to impact the products.
- The impact on gross profit over five years is an increase of \$1.2M.
- The impact on expected gross profit is a 6.5% increase, which is a material change.

Next Steps:

- Management should consider piloting the device at the new manufacturing location to increase long-term production capacity and gross profit.

Scenario 4: Increase the Subscription Cost

Big Idea: Increasing the subscription cost can increase revenue, but may impact demand.

Resolution Landing Page: Scentologic can increase the subscription cost to capture more value.

Detailed Resolution:

- Increasing the subscription cost from \$12 to \$15 per month results in an increase in revenue of \$3.3M over five years.
- The impact on expected gross profit is an increase of 12.8%, which is a material change.
- However, there may be a potential impact on demand due to the increased subscription cost.

Next Steps:

- Management should carefully consider the potential impact on demand before increasing the subscription cost to capture more value

Conclusion

Summary of findings:

- Changing the device color shell can reduce production costs and increase gross profit.
- Increasing advertising can drive increased demand and gross profit.
- Piloting the device at the new manufacturing location can increase long-term production capacity and gross profit.
- Increasing the subscription cost can increase revenue, but may impact demand.

Recommendations:

- Management should consider changing the device color shell and increasing advertising spend to increase gross profit.
- Management should consider piloting the device at the new manufacturing location to increase long-term production capacity.
- Management should carefully consider the potential impact on demand before increasing the subscription cost.

Additionally, it is recommended that management closely monitor the market trends and competition to ensure the product remains competitive and relevant. Regular market research and customer feedback should be conducted to identify any potential issues and opportunities for improvement. Furthermore, it is important for management to prioritize sustainability efforts and ensure that the company operates in an environmentally responsible manner. This can not only help to mitigate negative impacts on the environment, but also improve the company's reputation and attract environmentally conscious customers.

Overall, by implementing these recommendations, the company can increase profitability, production capacity, and sustainability, while also remaining competitive in the market and meeting the needs and preferences of its customers.