Business Analytics Capstone Framework for Strategy

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Problem Statement

Problem Statement–

Describe the Problem Adblockers present to GYF

- *Use this space for describing the problem. Be as specific as possible! You should focus on the implications of adblockers on GYF's ad-buying customers; in exploring this, you might also consider the implications for GYF's end users, operations, and/or internal organization.*

GoYaFace, Inc. (GYF) heavily relies on advertising revenue generated from its digital services. However, the increasing use of adblocking software by users poses a significant threat to its revenue stream, especially as mobile advertising sales continue to grow. GYF needs to find a way to combat adblocking software to ensure its continued revenue growth and profitability.

One potential solution to this problem is the use of anti-ad block services. Considering the year this case study is being written (**2023**), anti-ad block technology is already existing, Anti-ad block technology is software designed to detect and prevent the use of ad-blocking software by users who visit websites. This technology helps publishers and advertisers to serve their ads to users who would otherwise block them. However, to ensure the effectiveness of this strategy, GYF needs to conduct data-driven analysis to determine the most effective anti ad block service to implement. This analysis should consider factors such as the effectiveness of the service, the impact on user experience, and the cost of implementing the service. By leveraging data-driven insights, GYF can construct a comprehensive strategy to deal with the threat posed by adblocking software and ensure the long-term sustainability of their advertising revenue stream.

The focus of this analytics case study is to examine the use of anti-ad block technology as a potential solution against the threat of the ad blocking software to GFY's advertising revenue.

Specifically, this aims to answer the following questions:

1. **What method to be used in selecting an anti-ad block service provider?**
2. **How effective is the use of anti-ad block technology in sustaining the advertising revenue?**
3. **How to optimize the cost of implementing the anti-ad block service for long term?**
4. **How will this solution affect the user experience?**

Problem Statement–

Application Exercise 1 – Research Methods and Tools (Optional)

- *Use this space for to answer the questions set out in Application Exercise 1: 1. Given your definition of the problem faced by GYF, what type(s) of research will you employ to learn more about the strategy the DATA Team should pursue? 2. What research tools could you use to conduct that research?*

Given the problem faced by GYF, and the specific research questions this study wish to address, the **Descriptive** type and **Causal** type of Research is to be used.

1. **Descriptive Research**: As the firm is aware of the threat/problem and its implications, the study is designed to answer questions like, what method will be used in selecting an anti-ad block service provider.

2. **Causal Research**: The goal of this type of research is to establish a cause-and-effect relationship between variables, this will help in determining the effectiveness of anti-ad block technology in sustaining ad revenue, as well as determine how will anti-ad block service affect customer experience.

Tools:

- Mobile Surveys: to gather information on user's attitude toward the online advertising and adblocking, as well as their experience in anti-ad block service.
- A/B Testing: For testing the effectiveness of anti-ad block technology in relation with ad revenue.
- Pricing Analysis: To measure the cost-effectiveness of the solution/strategy of this case study.

Strategy

Strategy

Describe your proposed strategy

- *Make sure your strategy is clear, well-defined, and feasible*

Strategy: Implement an anti-ad block service to combat ad-blocking software, while optimizing for effectiveness, cost, and user experience.

This strategy shall be implemented through the following actions:

Step 1: Define Metrics for Success

Before implementing any strategy, it's essential to define metrics for success. Metrics will help to measure the effectiveness of the anti-ad block technology in sustaining advertising revenue, optimizing the cost of implementing the anti-ad block service, and how it affects user experience. Metrics to consider include:

- Increase in advertising revenue
- Reduction in the use of ad-blocking software
- Cost savings from implementing the anti-ad block service
- User satisfaction ratings

Step 2: Conduct Data-Driven Analysis to Select an Anti-Ad Block Service Provider

The first objective is to determine what method to use in selecting an anti-ad block service provider. Conduct a data-driven analysis of the various anti-ad block service providers, considering factors such as:

- Effectiveness of the service in preventing ad-blocking software
- Impact on website performance and user experience
- Cost of implementing the service
- Compatibility with existing technology and systems

Step 3: Implement the Most Effective Anti-Ad Block Service

Once the most effective anti-ad block service provider is selected, implement the service on the GYF website. Monitor its effectiveness in preventing ad-blocking software, its impact on website performance and user experience, and track the reduction in the use of ad-blocking software.

Strategy

Describe your proposed strategy

Step 4: Analyze the Impact on Advertising Revenue

The second objective is to determine how effective the use of anti-ad block technology is in sustaining advertising revenue. Analyze the data to track the increase in advertising revenue after implementing the anti-ad block service. Compare the revenue before and after the implementation of the anti-ad block service, then use statistical methods such as A/B testing to evaluate the effectiveness of the anti-ad block service.

Step 5: Optimize the Cost of Implementing the Anti-Ad Block Service

The third objective is to optimize the cost of implementing the anti-ad block service for the long term. Analyze the cost savings achieved from implementing the anti-ad block service and identify areas for further cost optimization. For instance, consider using cloud-based services, which may provide more cost-effective and scalable solutions.

Step 6: Analyze the Impact on User Experience

The fourth objective is to determine how the solution affects the user experience. Conduct user surveys to gather feedback on the anti-ad block service's impact on website performance and user experience. Use the feedback to make necessary improvements to the anti-ad block service to ensure user satisfaction.

Step 7: Continuously Monitor and Analyze the Results

Continuously monitor and analyze the results to determine the long-term effectiveness of the anti-ad block service. Regularly review the metrics defined in Step 1 to measure the success of the strategy and make any necessary adjustments to the anti-ad block service to ensure it remains effective over time.

Step 8: Hiring a capable associate for the team that is assigned to this strategy:

This part shall be discussed on the next slide.

By implementing this data-driven strategy, GYF can combat the threat posed by ad-blocking software and ensure the long-term sustainability of its advertising revenue stream.

Effects and Measurement

Effects

Describe the anticipated effects of your strategy

- *Please describe the anticipated effects of your strategy. Make sure you address the effects on customers, revenue, and the internal organization.*

The anticipated effects of the proposed strategy are as follows:

1. Improved effectiveness in selecting an anti-ad block service provider:

The data-driven approach will enable GYF to evaluate various anti-ad block service providers based on their effectiveness in preventing ad-blocking, their impact on user experience, and cost-effectiveness. By selecting the most effective provider, GYF can improve its ability to combat ad-blocking and ensure its advertising revenue growth.

2. Improved revenue:

By selecting the most effective anti-ad block service provider, GYF can ensure that their advertising revenue stream is sustained despite the increasing use of ad-blocking software. This could lead to an increase in revenue in the long run.

3. Cost optimization:

The data-driven approach will help GYF to determine the most cost-effective anti-ad block service provider, enabling the company to optimize its costs in implementing the solution in the long run.

4. Improved user experience:

By selecting an anti-ad block service that has minimal impact on user experience, GYF can ensure that users continue to enjoy their experience on the platform without being disrupted by intrusive ads or anti-ad block messages. This can result in improved user satisfaction and increased engagement on the platform.

Effects

Describe the anticipated effects of your strategy

- *Please describe the anticipated effects of your strategy. Make sure you address the effects on customers, revenue, and the internal organization.*

The anticipated effects of the proposed strategy are as follows:

5. Data-driven decision making:

By leveraging data-driven insights, GYF can make informed decisions and continuously monitor the effectiveness of the anti-ad block service. This could lead to a more efficient use of resources and cost savings in the long run.

6. Competitive advantage:

By implementing a comprehensive anti-ad block strategy, GYF can differentiate themselves from their competitors and establish themselves as a leader in the market. This could lead to a competitive advantage and improved market share.

Overall, the anticipated effects of this data-driven strategy are expected to lead to increased advertising revenue and improved sustainability of GYF's advertising revenue stream, while minimizing the impact on user experience and optimizing costs in the long run.

Effects

Application Exercise 3 – Designing a Deterministic Optimization Model

Assume that an important part of executing your strategy in addressing adblocking will be efficiently allocating the limited resources of the DATA team. Recall that in Module 2 in Operations Analytics ("Prescriptive Analytics: Making the Best Decisions in Settings with Low Uncertainty"), Professor Savin explained how a simple resource allocation and optimization model can be constructed with only three essential pieces: decision variables, constraints, and an objective that you want to maximize or minimize.

Your task in this Application Exercise is to build a resource allocation and optimization model. Your model could be based on the scenario below, or one of your own design.

The scenario below is provided for those who wish to practice building a resource allocation without providing original numbers. But you should feel free to adapt this model to fit your strategy. Any model included in your "Effects" section that utilizes the concepts of decision variables, constraints, and an objective, will "count" as a completion of Application Exercise 3.

Optimization Model Scenario

GYF has a robust training program. Two of its training programs are known as the "Hard Skills Program" and the "Soft Skills Program." Each of these trainings has two sub-programs: "External" (focusing on employee tasks mainly dealing with clients and customers outside GYF) and "Internal" (focusing on employee tasks mainly dealing with fellow GYF employees). As the leader of the DATA team, you can enroll your employees in these training programs, but you must decide how to best allocate your training budget of $65,000 among these four training options (Hard Skills/External, Hard Skills/Internal, Soft Skills/External, and Soft Skills/Internal).

You decide to base this decision on productivity return rates. GYF's management has calculated that the productivity return (i.e., the expected extra productivity in the next period, in the equivalent of U.S. dollars, that is achieved for each U.S. dollar spent on training, net of training cost) is proportional to the amount of money spent on training and can be expressed as follows:

	Hard Skills	Soft Skills
Internal	0.2	0.6
External	0.7	0.4

This means that $10,000 spent on the Internal Hard Skills Program results in $2,000 worth of increased productivity in the next period. This return is cumulative, meaning that if you spent $10,000 on the Internal Hard Skills Program and $10,000 on the External Soft Skills Program, your total dollar return in productivity increases would be 10000*.2+10000*.4.

You need to decide how much of your budget to spend on each type of training to maximize the total productivity return. But you can't simply spend all your budget on the type of training with the highest return, because there are three requirements (in addition to staying within your budget) that management is requiring you to satisfy in allocating your training budget. They are:

- The Hard Skills training program must achieve at least $20,000 in the total net productivity increase;
- The Soft Skills training program must achieve at least $12,000 in the total net productivity increase; and
- The Internal program should achieve at least 60% of the net productivity increase realized for the External program.

Assume all these figures are "deterministic" – known, and non-random.

Your task for this Application Exercise is to follow the steps outlined in Module 2 of the Operation Analytics course to:

1. Algebraically express the various relationships between the factors outlined above; and

2. Use a spreadsheet application like Excel and a function like Solver to allocate your budget in a way that maximizes the productivity return (i.e., determine what amount of the budget, if any, should be spent on each of the four types of training to maximize productivity, subject to the constraints).

You're encouraged to build the spreadsheet from scratch, but a template spreadsheet is provided at the "Application Exercise 3 Spreadsheet" link in Module 4 for those who would like to use it.

Include your answers to these questions, and an explanation of the steps you followed, in the Slides you upload for the Module 4 assignment.

While there are numbers to be derived from Solver, your focus should be less on the math and more on demonstrating that you understand the significance of the concepts of decision variables, constraints, and objectives in your strategic thinking.

Note: The text was extracted from the course material to provide context for application exercise 3.

Source: Coursera.org-Wharthon Online Business Analytics Specialization, Business Analytics Capstone, Week 3 – Describing Effects and Measuring Metrics

Effects

Application Exercise 3 – Designing a Deterministic Optimization Model

Application exercise 3 was accomplished in Microsoft Excel. The Solver function was used to perform calculation for optimization

Result shows the following:

- **The maximum total productivity is to be achieved if the amount of budget to be spent on external hard skills and internal soft skills are $38,235 and $26,765 respectively.**
- **The maximum total productivity increase is $42,824.00**

Business Analytics Capstone

Application Exercise 3

Net Productivity Increase (in $ per $ spent on training)

Training	Hard Skills	Soft Skills
Internal	0.2	0.6
External	0.7	0.4

Total Net Productivity Increase (in $ thousands)

$	42,823.53

Spending Amounts (in $ thousands)

Training	Hard Skills	Soft Skills
Internal	$ -	$ 26,764.71
External	$ 38,235.29	$ -

Productivity increase ($)

Training	
Internal	$ 16,058.82
External	$ 26,764.71
60% of External	$ 16,058.82

Total Spending Budget (in $ thousands)	$ 65,000.00	≤	$ 65,000.00
Productivity Increase in Hard	$ 26,764.71	≥	$ 20,000.00
Productivity Increase in Soft	$ 16,058.82	≥	$ 12,000.00
Productivity Increase Internal v. External	$ 16,058.82	≥	$ 16,058.82

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Measurement

Describe the anticipated effects of your strategy and how you will measure them

- *Please outline your plan for measuring these effects using data. Make sure you use techniques you learned about in the courses*

To measure the success of the proposed strategy, we can use the following key performance indicators (**KPIs**):

1. Ad revenue growth:

We can measure the change in advertising revenue over time after the implementation of the anti-ad block technology. This will provide insight into the effectiveness of the selected anti-ad block service provider and whether the strategy is successful in sustaining advertising revenue growth.

2. User engagement:

It is important to ensure that the implementation of the anti-ad block technology does not negatively affect user experience. We can measure user engagement metrics such as time spent on the website, bounce rate, and click-through rate to evaluate the impact of the anti-ad block technology on user behavior. Such metrics shall undergo data-driven analysis to explore insights.

3. Cost optimization:

We can measure the cost savings achieved through the optimization of anti-ad block service provider selection and long-term cost optimization. This will provide insight into whether the strategy is successful in reducing costs associated with anti-ad block technology implementation.

4. User feedback:

We can gather user feedback through surveys or focus groups to evaluate user perception of the anti-ad block technology and its impact on their experience. This will help us identify areas for improvement and further refine the strategy.

By monitoring and analyzing these **KPIs**, we can evaluate the effectiveness of the strategy and make any necessary adjustments to ensure continued success. We can also compare the **KPIs** to the initial objectives to determine if the strategy has achieved its intended goals and if any additional objectives have arisen during the implementation process.

Measurement

Application Exercise 4 – Identifying Key Drivers

- *Apply the "causal business model" performance measurement framework to your strategy*

Hypotheses:

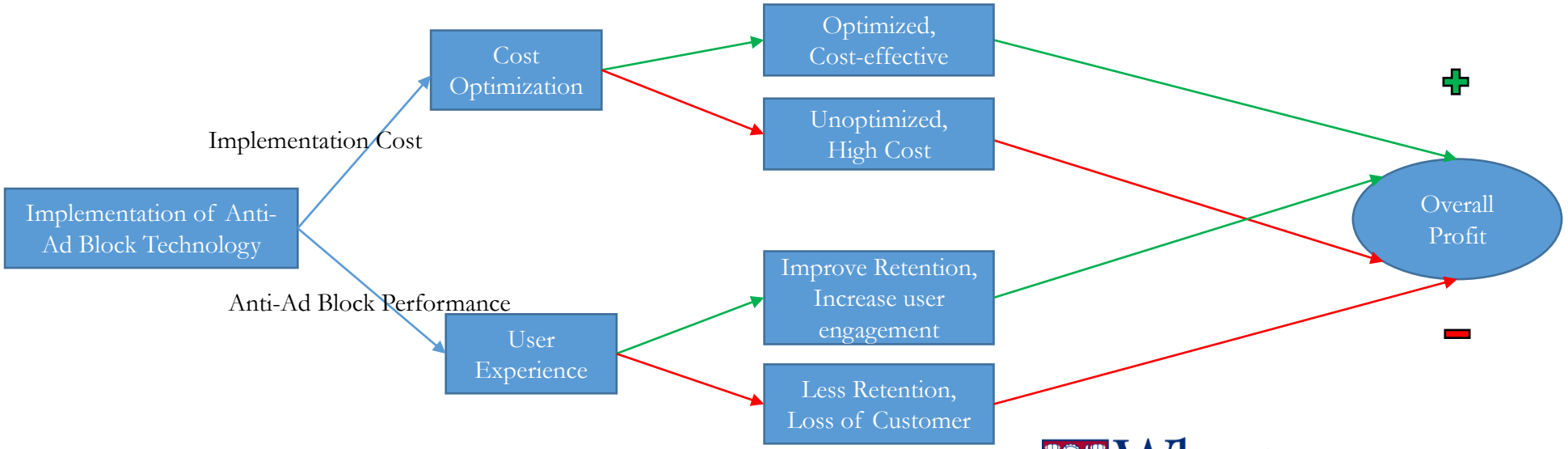
- Implementing a cost-effective anti-ad block technology, increases ad revenue AND overall profits of GFY Inc.
- The implementation of the anti-ad block technology affects user experience, hence the ad revenue.

Key metrics:

- Implementing cost – this metric is an independent variable that needs to be optimized and continuously monitored.
- Anti-Ad Block performance – this metric is also an independent variable

Testing Hypothesis:

- Multivariate Correlational Analysis
- A/B Testing



Conclusion

Problem Statement

The increasing use of adblocking software by users poses a significant threat to its revenue stream. GYF needs to find a way to combat adblocking software to ensure its continued revenue growth and profitability. The use of anti-ad block service is examined as a potential solution.

Objective questions:

1. What method to be used in selecting an anti-ad block service provider?
2. How effective is the use of anti-ad block technology in sustaining the advertising revenue?
3. How to optimize the cost of implementing the anti-ad block service for long term?
4. How will this solution affect the user experience?

Effects

The anticipated effects of the proposed strategy are as follows:

1. Improved effectiveness in selecting an anti-ad block service provider
2. Improved revenue
3. Cost optimization
4. Improved user experience
5. Data-driven decision making
6. Competitive advantage

Strategy

Implement an anti-ad block service to combat ad-blocking software, while optimizing for effectiveness, cost, and user experience.

Step 1: Define Metrics for Success
Step 2: Conduct Data-Driven Analysis to Select an Anti-Ad Block Service Provider
Step 3: Implement the Most Effective Anti-Ad Block Service
Step 4: Analyze the Impact on Advertising Revenue
Step 5: Optimize Implementation Cost of the Service.
Step 6: Analyze the Impact on User Experience
Step 7: Continuously Monitor and Analyze the Results
Step 8: Hiring a capable associate for the team that is assigned to this strategy:

Measurement

To measure the success of the proposed strategy, we can use the following key performance indicators (**KPIs**):

1. Ad revenue growth
2. User engagement
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By monitoring and analyzing these **KPIs**, we can evaluate the effectiveness of the strategy and make any necessary adjustments to ensure continued success.