Business Analytics Capstone Framework for Strategy

16/04/2019

Problem Statement

Adblocking software and evolving user behavior is disrupting online advertising practice.

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.*

In the recent years, two main phenomena have emerged – the changing behavior in our users (spending more time on mobile than on desktop), and the proliferation of new technologies to enhance user experience (i.e. adblocking software has become increasingly popular); these factors are perceived to have a direct influence on GYF's main source of revenue – selling advertising to other companies.

End user – The end user group must be understood, so thorough analyses have to be conducted – including trending behavior, projected demand, qualitative and quantitative research.

Operations – Are there any problems with the current operations or optimization techniques to increase operational effectiveness?

Internal Organization – Should resources be allocated to R&D and implementation to address this problem, if yes, how much and what is the estimated monetary value of the anticipated prescriptive solutions?

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?*

Step 1 – Exploratory Research

Undertake exploratory research to collect data, so that the problem statement can be better defined. This would mean to design an unobtrusive survey for the current GYF user base and/or engage third party analytics companies to undertake research on its competitors such as Yahoo, Google & Facebook. (note: 70% user activity on mobile, hence it would be ideal to deploy in-app or in-browser surveys with some reward incentive on completion) Depending on the research budget, other tools like scanner data, social media data, etc. can be collected, pruned, to be included into the research.

Step 2 – Descriptive Research

After the Exploratory Research is completed, run models to formally review the results. The results will better inform our understanding of the problem objectively, as to avoid subjective biasness or intuition-like statements. Use models like Moving Averages, Seasonality Studies to understand the trending behavior over time.

Step 3 – Causal Research

At this stage, we can create some hypotheses formulated from the Descriptive Research, and run experiments within a controlled environment to ensure that causal statements are proven (i.e. if A happens, then B happens), and to avoid the ‘correlation-causation’ problem.

Strategy

Strategy

Describe your proposed strategy

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

A starting point may be to define the Approach (Traditional, Adaptive, or Visionary)
Once the Approach has been determined, and based on the Analytics undertaken, stipulate prescriptive actions to be executed Some examples include,

- Allow only 'delightful ads'
- Optimize for native advertising only
- Create incentives for attention from customers

Once the possible outcomes are determined, conduct surveys and experiments to accurately measure the outcomes of each iteration before ranking the solutions. Be mindful to estimate the cost of each solution for the expected monetary return in value. Decision trees and simulation exercises should be undertaken.

Other considerations:
Given the emerging behavior of increase mobile activity compared traditional desktop interaction, resource allocation should be skewed in the favor of adblocking strategies on the mobile environment.

How will these strategies differ and affect all products such as GYF Search, Mail, Chat, and Digital Media?

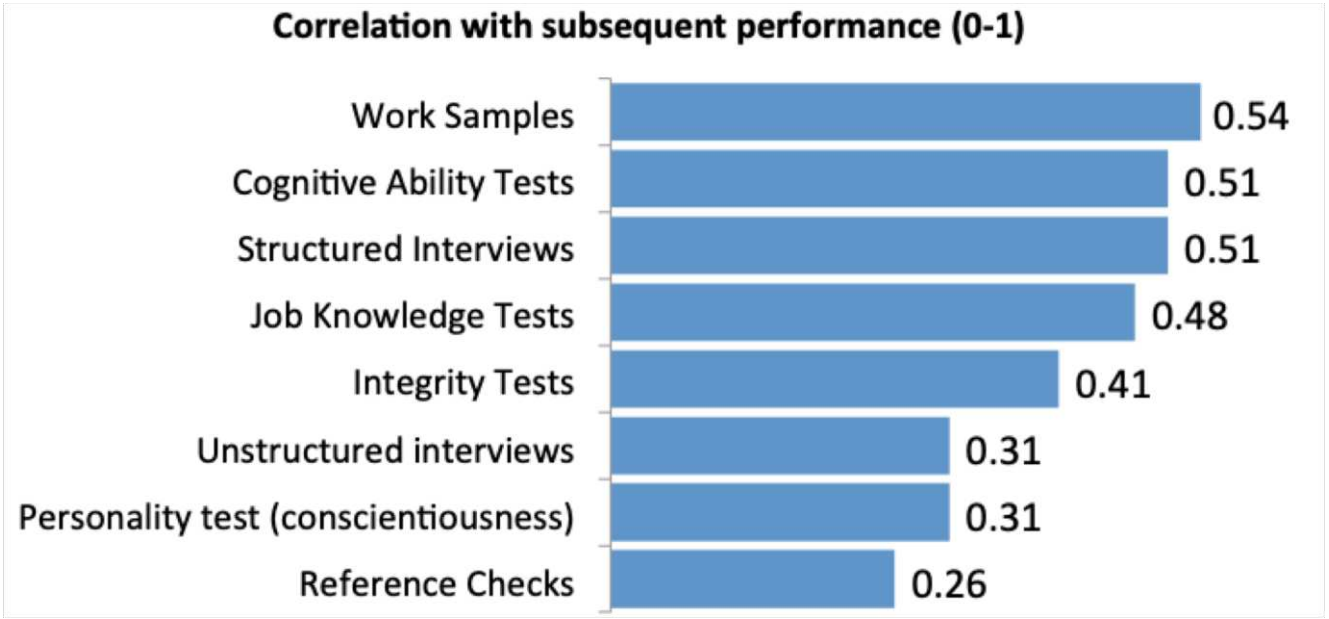
What are other competitor companies doing?

Strategy

Application Exercise 2 – Hiring a Team Leader (Optional)

- *Based on the information provided in Application Exercise 2, describe here why you would hire Carrie Candidate or Peggy Prospect to be the second-in-command of the DATA Team.*

Purely based on the information provided, the following decision-basis is as follows:
The most correlated factors to performance outcomes such as 'Work Samples', 'Cognitive Ability Tests', and 'Structure Interviews', were weighted strongly during the review process. Based on the model below, **Carrie Candidate was selected for the job**, as she fared better on a weighted average when compared against Peggy Prospect.



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.*

1. Anticipated Effects of Strategy on CUSTOMERS

Customers should have an improved user experience, and be incentivized to increase interaction with the GYF platforms. Increased screen time from customers is a likely outcome.

2. Anticipated Effects of Strategy on REVENUE

The business should experience an increase in REVENUE from advertising

Mindful that PROFIT may not be realized at the early stages as cost for planning, reallocation of resources, implementation may increase, resulting in negative cashflows.

3. Anticipated Effects of Strategy on INTERNAL ORGANIZATION

The business may experience a shortage of cash due to new strategy implementation and reallocation of resources.

The staff may feel overwhelmed at the beginning as new experts/professionals are hired to implement new strategy, so some time for readjustment and refocusing is required.

Effects

Application Exercise 3 – Designing a Deterministic Optimization Model

- *Provide an explanation of the calculations you performed to build an optimization model using decision variables, constraints, and an objective; this model could use the scenario in Application Exercise 3, or one of you own devising.*

1. Building the Optimization Model – DECISION VARIABLES > SOLUTION > OBJECTIVE
2. Also define the following – OBJECTIVE FUNCTIONS & CONSTRAINTS
3. Formulate the ALGEBRAIC MODEL to undergo SOLVER to find an Optimized Solution

Application Exercise 3

Maximize Net Productivity Increase (P),
Where, P = HI + HE + SI + SE

Subject to,

HI + HE > $20,000	(Total Hard Skills Training)
SI + SE > $10,000	(Total Soft Skills Training)
(HI+SI) / P > 0.6	(Internal to External)
B <= 65,000	

		HI	HE	SI	SE	
Productivity Factor		0.2	0.7	0.6	0.4	
Budget (B)		0	38,235	26,765	0	65,000 **(Total B)**
Productivity Increase (P)		0	26,765	16,059	0	42,824 **(Total P)**
				Condition		
HI + HE	=	26,765	>=	20,000		
SI + SE	=	16,059	>=	12,000		
(HI+SI) / (HE+SE)	=	0.60	>=	0.6		
Total Budget	=	65,000	<=	65,000		

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*

1. Plan for measuring effects

Collect both quantitative and qualitative data as each strategy is being rolled out

Ensure that the strategy is always in line with the original problem statement

Crucial data to be collected include customer experience measures, screen time, and ad revenue

Define linkages and verify the causality of these measures

Ensure that organizational issues are addressed during the whole process

Assessment

Intuition, Management Consensus, Measurement Frameworks, Informal Data Analyses

- Develop a causal business model, describing how value drivers are linked to strategy
- Identify specific value proposition or hypotheses
- Test the hypotheses
- Incorporate the results in decision making models & performance evaluations

Steps

1. Identify the right drivers
2. Target setting (define the correct targets that are 'causal', and correct dimensions)

2. Techniques applied

Regression Models and working backwards to define causality

Prune noisy data, identify persistence, draw upon large samples where possible, identify independent signals

Ensure that the goal has been defined early on, and techniques are applied directly to achieve the goal.

Measurement

Application Exercise 4 – Identifying Key Drivers

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

1. Identify at least one hypothesis that is explicitly linked to your strategy in a causal way

Curating and allowing only 'native ads that are delightful' increases quality of ads, in turn increasing user's experience and directly contributes to revenues for advertising companies and GYF.

By rewarding 'GYF Points' as an incentive to ad-watchers, creates a loyalty bonus for user interaction with the GYF ecosystem, therefore increasing revenues along different business streams.

2. Identify at least one key driver and explain how that driver will be measured as your strategy is being implemented

Quantify and categorize the change in the following,

- Native ads
- Native ads that are delightful
- Non-native ads
- Non-native ads that are delightful

With all other conditions maintained constant, measure the screen time against each category and corresponding ad-revenue The next phase, would be to roll out a 'loyalty points' program and measure the change in screen time, as well as corresponding adrevenue accordingly.

3. Describe how you would go about verifying the linkage between the first two steps

Conduct surveys for each implementation in order to collect qualitative data from the users – if the data collected concurs with the hypotheses, it should verify the linkages of 'increase user experience' > 'increase screen time' > 'increase revenue'. Ensure that data fiefdoms and organizational intuitions are kept independent of analyses.

Conclusion

- *Summarize your key points from the preceding slides*

1. Problem Statement

Exploratory, Descriptive, and Causal Research to be undertaken to define a robust and deterministic Problem Statement.
Collect as much data as possible and generate models to study the problem and its peripherals in order to adequately understand the context of the problem. The problem statement should suggest the outcome and goal of the proceeding stage.

2. Strategy

Determine the business approach before deciding on the strategy.

Outline each strategic initiative in accordance to the problem statement and all research undertaken. Undertake a optimization modelling to maximize effectiveness of each implementation.

3. Effects & Measurement

Ensure that the effects of the implementation of strategy can be directly measured for future deployment and scaling.
The outcomes may not be favorable all the time – hence re-strategizing or re-optimization of the strategy may be required, redeployed, and remeasured. This process may repeat until the outcomes become favorable and addresses the original problem statement directly to achieve the overall business objective (i.e. maximize revenue, minimize expenses, outperform competitors etc.)