The Business of Pole Dance

1 Introduction

1.1 Pole Dance in Singapore

In Singapore, the pole community is numbered at roughly 4000 people, and the numbers are observed to grow each year(Han, 2020). This trend is also support by the number of pole dance studios in Singapore over the years, as shown figure 1 below. This is a strong indicator that pole dancing has increasingly become the activity of choice in Singapore.
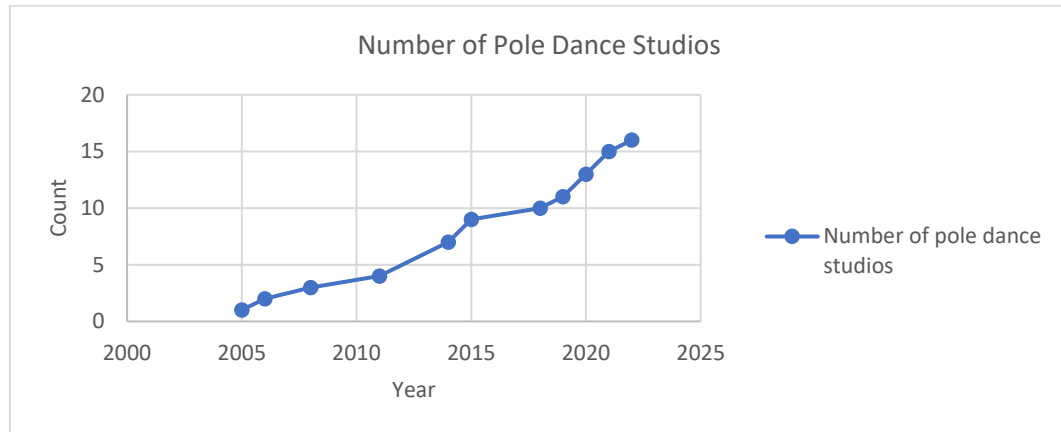

Figure 1 Number of Pole Dance Studios in Singapore

1.2 Studio Starfire

Studio Starfire is a pole dance studio in Tanjong Pagar, Singapore established in 2020 and has a student population of about 1300 and an average enrolment rate of 59%. They offer a variety of classes including 8-week courses, self-practice sessions and one-off workshops. A description of the available class types is shown in table 1 below.

Table 1 Description of Types of 8-Week Courses Offered

Class Description	Price
Pole Tricks - Further split into beginner, intermediate and advanced, this system allows for students to learn the various techniques of pole dance in a safe and structured manner, with incremental technical difficulty.	$260
Choreography - The focus of these classes is one's musicality, or the ability to move with the music. This is Studio Starfire's most popular and varied group of classes. Genres range from the emotive Lyrical to sexy Sensual and the energetic Girls' Style.	$260
Conditioning - These classes aim to increase the specific fitness required for pole e.g., core, upper arm, stamina, and range of motion.	$180

1.2.1 Studio Starfire Student Descriptive Statistics

The total student population consists of 1286 students, of which 90 are male, and 1195 are female. The total student population has a mean age of 29.43±6.4 years and median age of 28. The youngest and oldest student is 14 and 61 years old respectively, with a range of 47 years. The number of students in each age group are shown below in figure 2. Most students are between the ages of 21 and 35 years old.
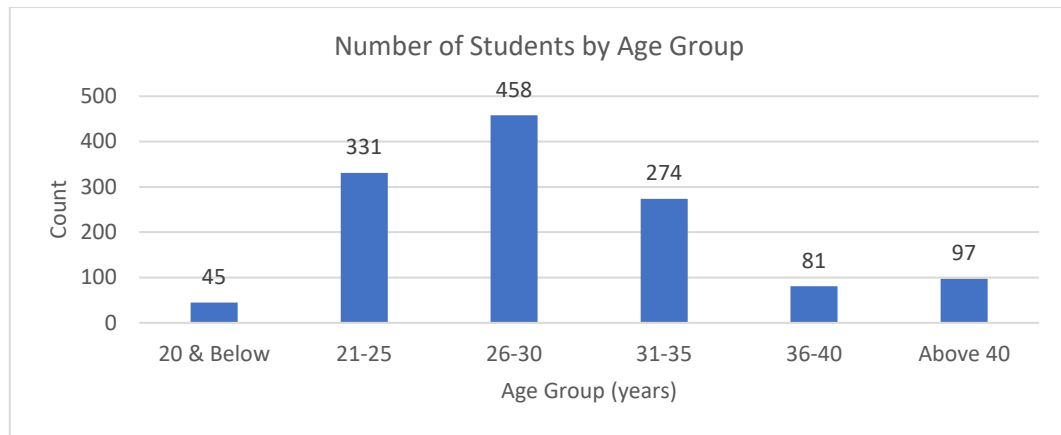
Figure 2 Number of Students by Age Group

2 Problem Statement

The owner of Studio Starfire would like to increase the studio's profits. In addition to capitalising on this rising trend, overall inflation has also led to rising costs which threatens the sustainability of the business in the long run if the studio's profits do not increase in tandem.

This project aims to explore 4 different strategies to increase the business profit of Studio Starfire via:
- **Price Sensitivity Analysis –** Analysis of class prices against demand to optimise class price chargeable to students.
- **Optimising Class Mix** – Optimise number of class types and runs in the timetable to maximise profits.
- **Expansion Model Analysis** – Determine if it is viable to set up a new branch at a new location.
- **Analysis of Customer Relation Strategies** – Explore marketing strategies to increase class enrolment rate.

3 Data Sources

Data sources are shown below in table 2 in no particular order:

Table 2 Data Source and Descriptions

Data Description	Purpose	Data Source
Class Prices	To understand historical class prices and corresponding demand	Studio Starfire
Historical Class Enrolment Rate	To understand historical class enrolment rate to predict future demand	Studio Starfire
Class Schedule	To understand how classes are allocated	Studio Starfire
Class Registration Demographic Data	To understand the enrolment rate by demographic, to better target marketing plans	Studio Starfire
Cost Per Class Run	To compute the profit of each class.	Studio Starfire
Class and Price Information of Studio Starfire's main competitors	As a benchmark to adjust class prices against	Studio Starfire https://www.divapolesg.com/ https://www.pxdpolestudio.com.sg/ https://www.slap.sg/

Commercial Space Prices	To inform rental rates at various locations for the expansion plan model.	CommercialGuru.com.sg
Establishment Date of Pole Dance Studios in Singapore	As a proxy to illustrate increase in demand.	https://www.sgpbusiness.com https://www.uen.gov.sg/

4   Models and Analyses

4.1   Pricing Model and Class Run Optimiser

4.1.1   Pricing

To determine the optimal class price chargeable to customers, a price sensitivity analysis is conducted. Historical class enrolment is used as a proxy for demand. The class price vs enrolment data was provided by Studio Starfire, from their previous analysis of 3 competitor studios.

Seen in figure 4 to 6 for pole tricks, pole choreography and pole conditioning classes against enrolment, demand does not fluctuate greatly with varying class prices. This suggests that for pole classes, demand is generally price inelastic. Nonetheless, it was assumed that the relationships provided a proxy to the expected enrolment for different class prices.
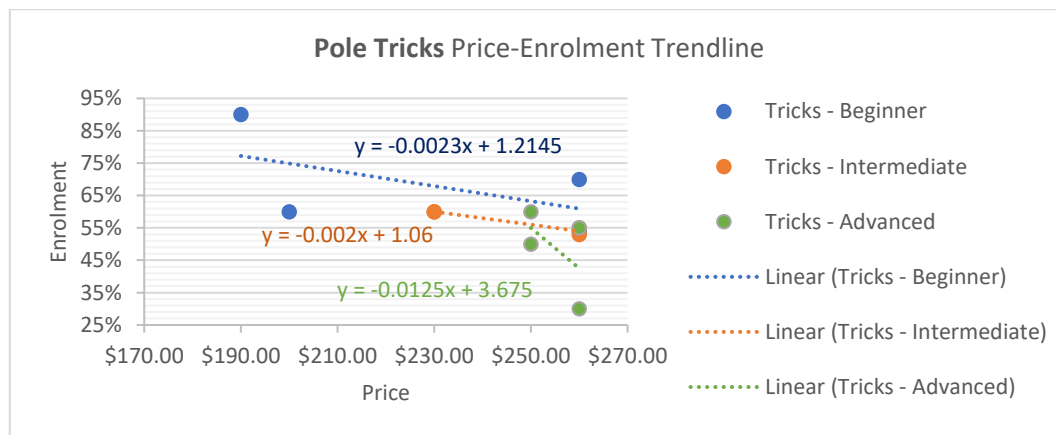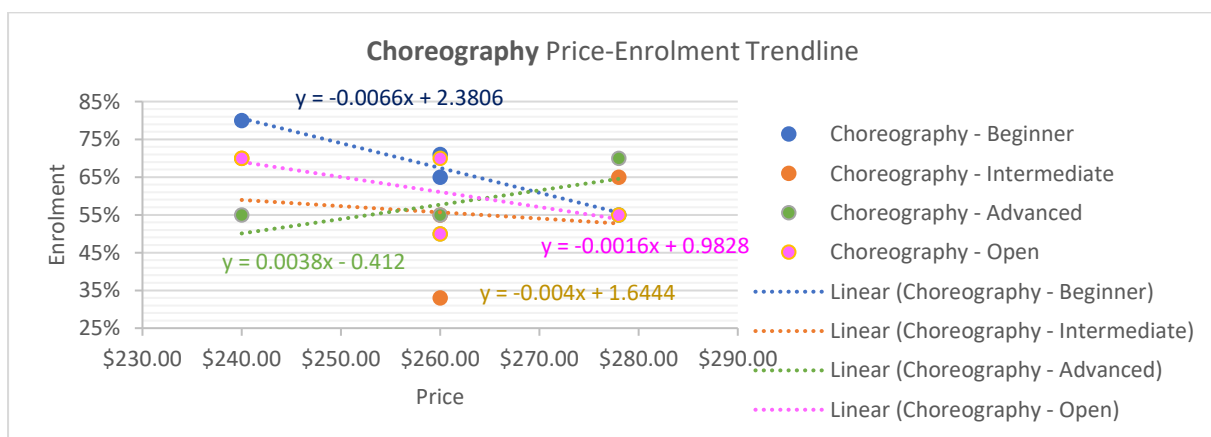
Figure 2 Enrolment Rate by Pole Tricks Class Price

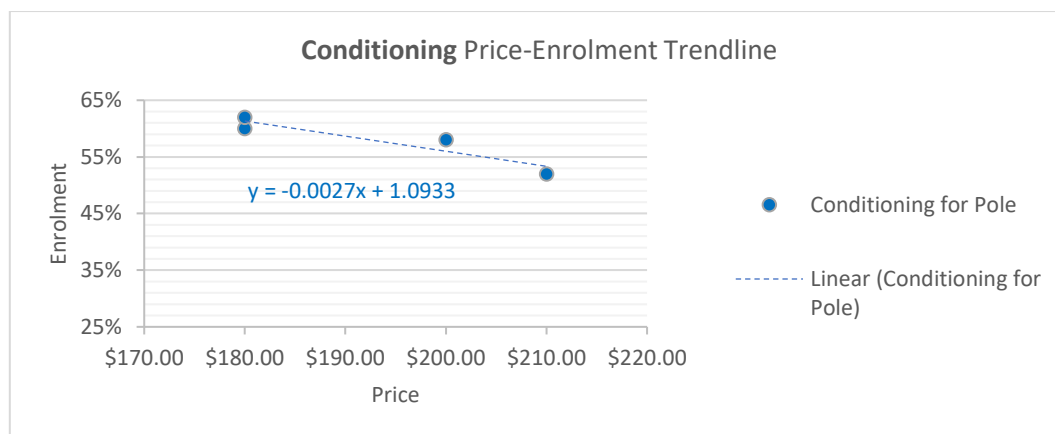*Figure 3 Enrolment Rate by Pole Choreography Class Price*

Figure 4 Enrolment Rate by Conditioning for Pole Class Price

As class prices are not tiered according to class difficulty level, there is potential profit to be made by making price adjustments. To model this, the enrolment relationships were imputed to Solver function to compute potential prices for individual class types to achieve an optimal profit. The assumption was that same number of classes are run in 2022, and constraints on enrolment rate (must be less than or equal to 100%), and maximum class prices (must be less than or equal to $300) were used. A comparison between current and recommended class price is shown in table 3 below.

Table 3 Comparison of Current and Recommended Class Price and Their Respective Enrolment Rate

Class Type	Current Price	Enrolment Rate	Recommended Price	Expected Enrolment Rate
Pole Tricks - Beginner	$260	54%	$261	61%
Pole Tricks - Intermediate	$260	55%	$265	53%
Pole Tricks - Advanced	$260	55%	$214	100%
Choreography - Beginner	$260	71%	$211	100%
Choreography - Intermediate	$260	33%	$300	49%
Choreography - Advanced	$260	50%	$300	49%
Choreography - Open	$260	50%	$207	82%
Conditioning for Pole	$180	62%	$205	55%

Using the recommended price by solver to calculate projected profit (Current Price * Actual Enrolment Number), an increase of profits by 56% is projected, as seen in table 4 below.

Table 4 Comparison of Profit

	Profit
Profit with Current Class Price	$ 35,840.00
Profit with Recommended Class Price	$ 56,026.00
Percentage Increase	**56%**

4.2   Class Run Optimiser

Using the new class prices as a decision input, a class run optimiser was modelled. It is hypothesised that if classes with higher expected demand are run more often, more profit can be achieved, as enrolment is expected to be higher. It is also assumed that the studio will be able to generate enough demand through other strategies to fill up the classes to maximum capacity. Excel Solver was used to compute the optimal number of class runs per term, constrained by a) the number of available instructors to teach each class (see Annex for matrix table to select instructors), b) minimum number

of runs needed per class type and c) the studio capacity. We referenced the class runs from Jan 2022 as current baseline data. Note that the optimiser is run on a per course term basis, which is 8 weeks. Classes with higher price and higher expected demand are maximised to run more often. Conversely, classes with lower price and lower expected demand is recommended to run less often. The recommended class runs compared to baseline is shown in figure 7 below.
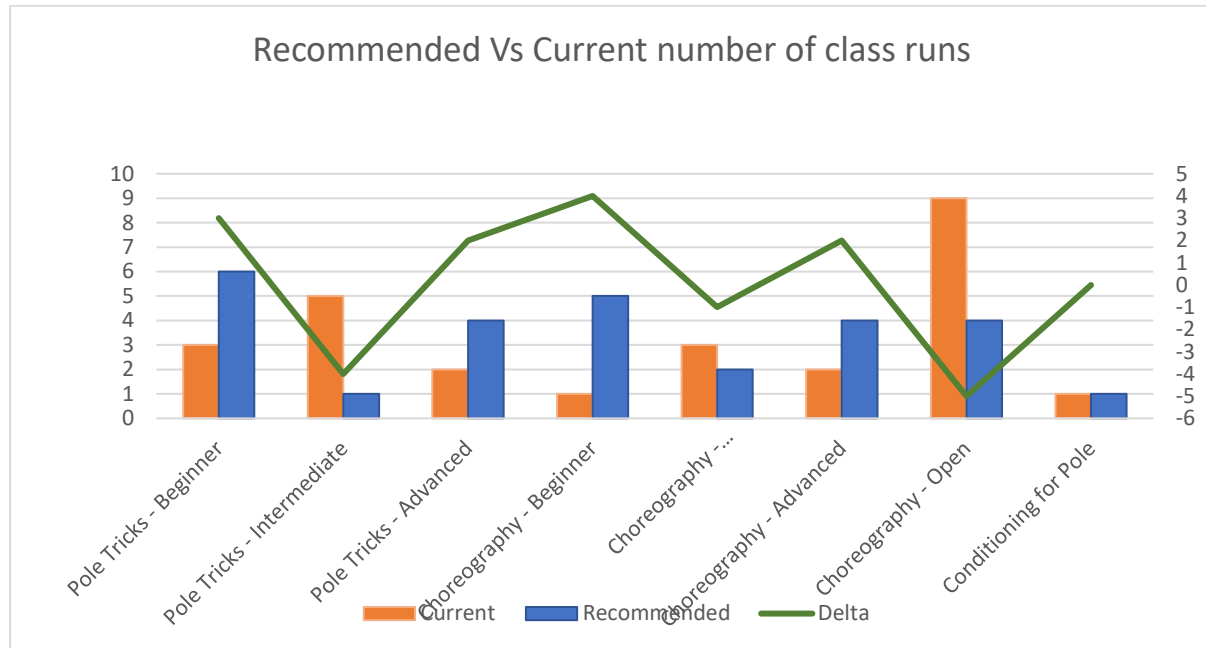

Figure 5 Comparing Recommended vs Current Number of Class Runs by Class Type

With the optimised class runs as recommended by excel Solver, the expected profit per 8-week term increased slightly by 32% compared to Jan 2022 term, shown in table 5.

Table 5 Percentage Change of Profit

	Profit	Percentage change
Baseline	$17,684.00	
Recommended	$23,277.20	32%

4.3 Customer Relations Management Model

A model was created to explore increasing class enrolment rate using social media marketing, discounts, and incentives, as they can be effective strategies for small businesses to attract customers and increase sales(Bashar, AdmadI, & Wasiq, 2012).

The impact of social media marketing (on Instagram and TikTok) and email newsletter marketing will be discussed. The conversion metrics used are:

- Total number followers/subscribers
- Cost per acquisition (CPA) and return on investment (ROI)

4.3.1 Current Model

Studio Starfire currently has a $1,500 budget per year for marketing. Due to their student base mainly young working adults who are avid social media users, they have strived to maintain a presence on Instagram (@studiostarfire) and TikTok (@studiostarfire), along with a fortnightly email newsletter. As of December 2022, the number of followers/subscribers on each platform is 2762, 2191 and 4638.

The budget spend on various paid ad campaigns were analysed for years 2021 and 2022. According to figure 8 below, the CPA, given by the amount of money spent per customer who signs up for a class, is the lowest for TikTok. This means marketing on Tiktok is most effective, as less ad budget is required to get a customer to sign up for a class with the studio. This is also supported in figure 9, as it can be observed that number of customers acquired from Tiktok is the greatest.
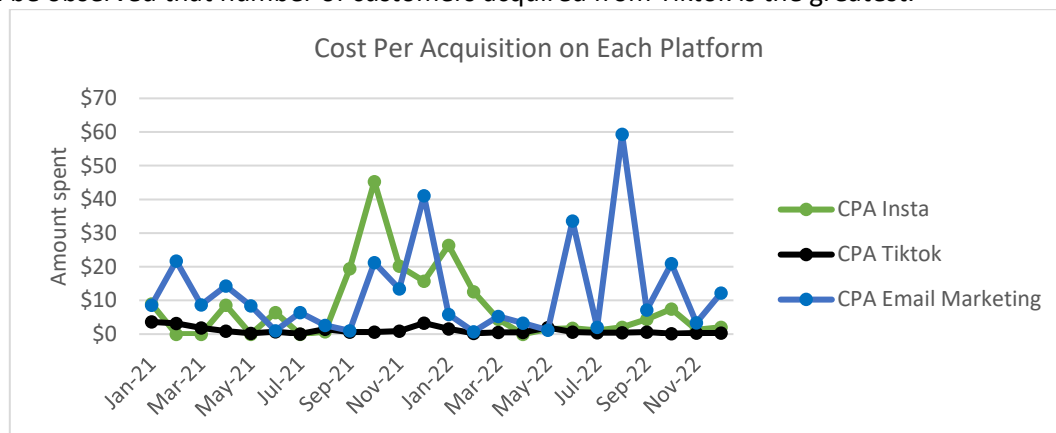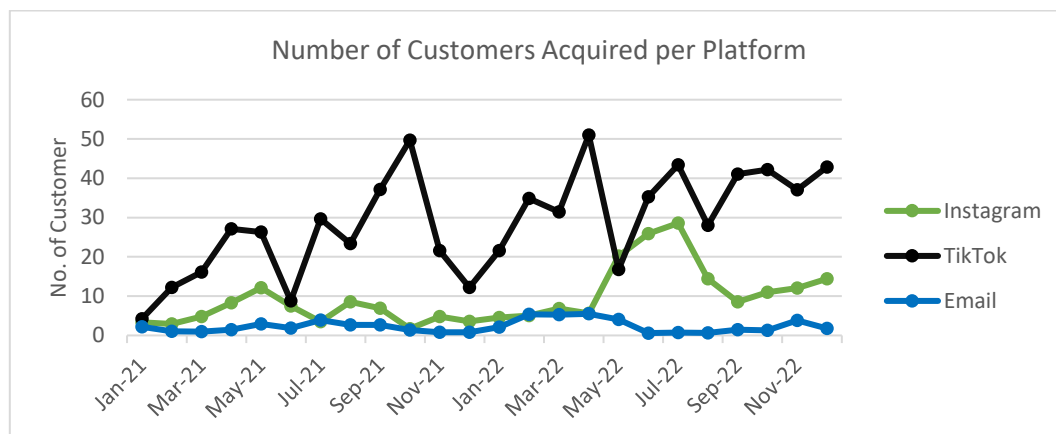

Figure 6 CPA per Platform

Figure 7 Number of Customers Acquired per Platform

Investigating further, the return on investment (ROI) vs CPA of each platform is broken down, given below in figures 10 to 12. Based on these figures, we can conclude that as CPA increases, the ROI decreases.
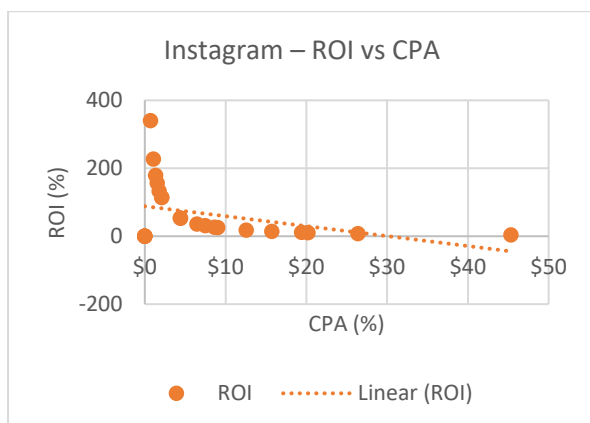

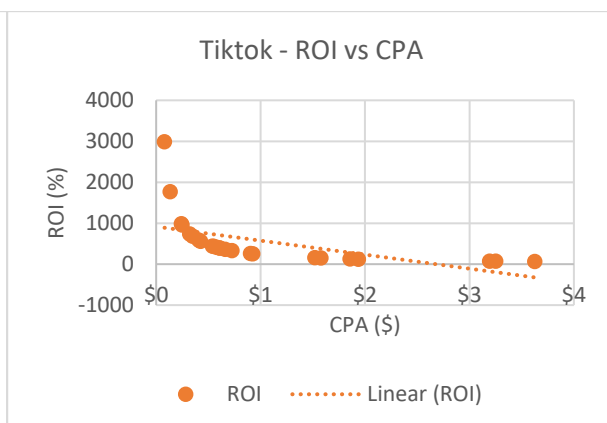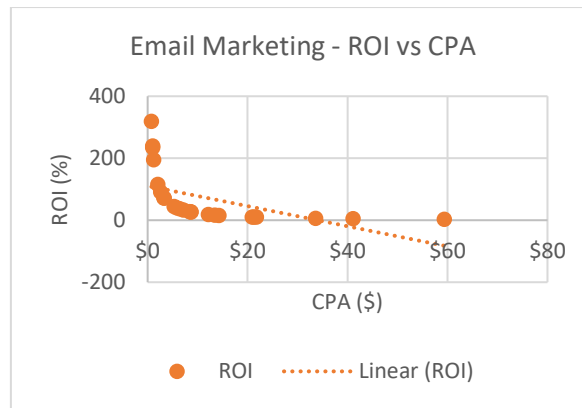*Figure 8 Instagram - ROI vs CPA*

Figure 9 TikTok - ROI vs CPA

Figure 10 Email Marketing - ROI vs CPA

4.4   Expansion Model

A profitability analysis for a four-year expansion model of Studio Starfire was developed, which involved examining rental costs, expected salary increases, revenue projections, inflation expectations, and the competitive landscape across different locations. The purpose of this analysis was to identify suitable locations for the expansion of the business.

The following factors were considered for evaluation:

    a.   Fixed Cost
    b.   Variable Costs
    c.   Inflation
    d.   Revenue Increment Rate
    e.   Per Square Feet Cost of Different Locations
    f.   Salary Increments

The analysis was based using the following assumptions:

    a.   Fixed Costs stay constant for a period of 4 years
    b.   Salaries of owners and staff to increase annually at a constant rate of 5% and 3% respectively.
    c.   Annual inflation is set at 3%
    d.   Revenue increases 7% annually

The expansion model aims to determine the financial feasibility of expanding the business based on estimated profitability. A demand multiplier is also added to depict location specific factors e.g., average footfall, accessibility from public transport that may affect enrolment rates.

Additionally, our model considers the initial investment that the business is prepared to allocate, which amounts to $150,000. Despite locations such as Orchard Street having the highest ROI of 80.57%, have been eliminated as a preferred expansion location since the initial investment of $150,000 is not sufficient to support it.

Figure 13 illustrates the profitability of various locations over a period of four years, considering the initial investment, to assist shareholders in making informed decisions regarding expansion.
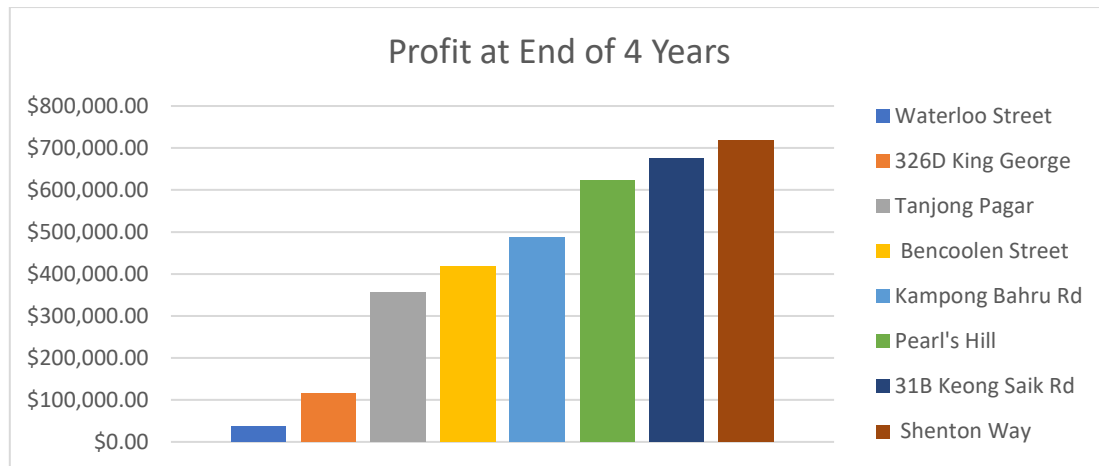
Figure 13 Estimated Total Profit After 4 Years

In addition, the cumulative ROI is calculated, as another measure for shareholders to have a better understanding of the expected returns on their investment in Studio Starfire. The cumulate ROI values (for select locations) are given below in figure 14.
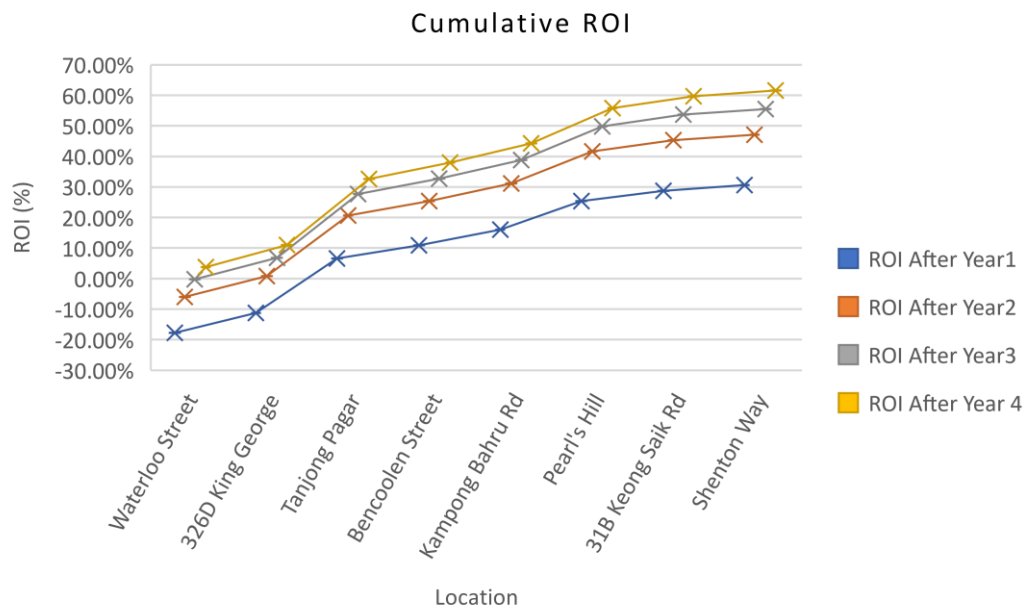

Figure 14 Cumulative 4-year ROI

5   Insights & Conclusion

5.1 Class Price & Scheduling

Harnessing a data-driven approach to set price and manage class schedules has good potential to help increase profits. The developed models provide Studio Starfire with a basis to determine prices and number of class runs. However, the user must be mindful that expected demand is challenging to predict due to the price inelastic nature of the market. Hence, Studio Starfire should complement this analysis with other strategies to increase enrolment rate. Figure 15 below shows how increase in enrolment rate can help to increase profits across different class prices.
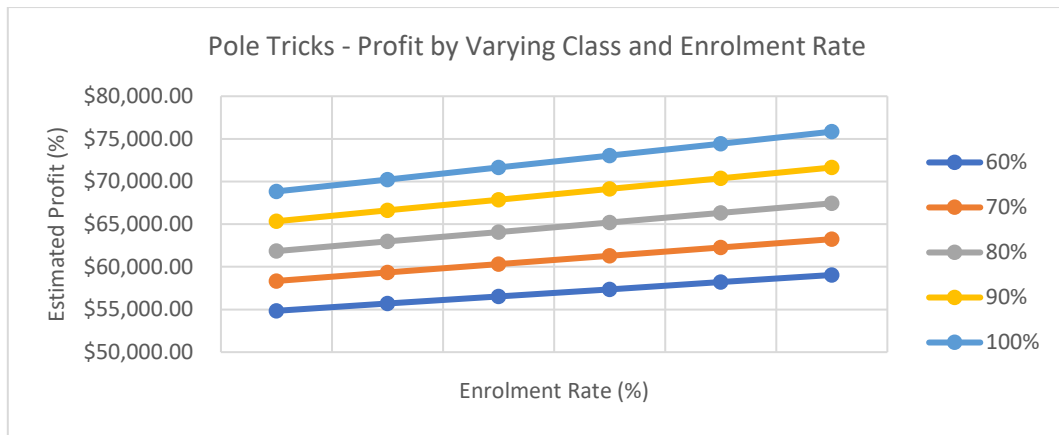
Figure 115 Profit by Varying Class and Enrolment Rate
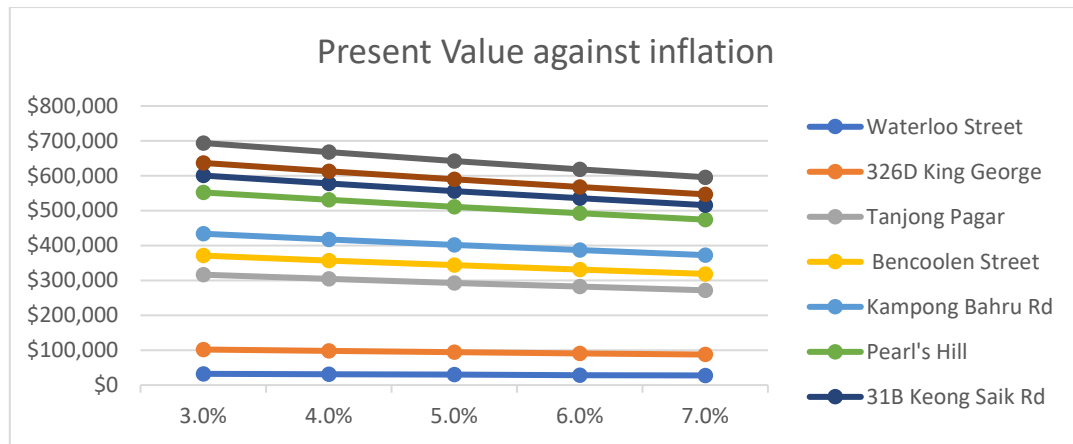
5.2 Marketing Focus

Per our analysis, it is evident that the TikTok is the best performing channel. Hence it is recommended for Studio Starfire to focus on creating engaging content and assigning more budget for this platform to attract new followers and encourage current followers to sign up.

However, as Studio Starfire reaches and captures more people to try pole dance in Singapore, eventually, they may hit a plateau where marketing and advertising efforts no longer generate sufficient revenue to justify the cost. Since pole dance is a niche market with a small target audience, it can be more challenging to reach and attract potential customers after capturing majority of the market share. For the customers that are already enrolled for classes in Studio Starfire, it is important to retain them, and encourage them to sign up for classes every term. The studio should thus maintain their current loyalty and referral discounts.

5.3 New Branch Location

The new branch's potential profitability was determined using a location's required investment and expected ROI. This provides the shareholders of Studio Starfire with an understanding of the expected returns on their investment in the business. In general, prime locations e.g., Shenton way, offer a greater ROI, but they also demand a higher investment upfront. Assuming an initial investment budget of $150,000, Bukit Pasoh, Cecil Street, Robinson Road, Cross Street and Orchard road are not suitable locations.

The risk appetite and resources of the shareholders will determine the budget, thus location Studio Starfire's new branch. Using Shenton Way as an example, the required investment is estimated to be $148,284 and the estimated ROI by the end of 4 years is 61.56%. While Waterloo Road requires a much lower estimated investment of $36,309, its estimated ROI at the end of 4 years barely breaks even. However, it is also important to note that the projected values given by the model may not accurately reflect circumstances e.g., sudden economic downturn that may arise in the future, and thus, may affect the actual gains from investment. This is illustrated by the sensitivity analysis in the figure below shows the changes in present value over 4 years for different locations.

Present Value against inflation

Legend:
- Waterloo Street
- 326D King George
- Tanjong Pagar
- Bencoolen Street
- Kampong Bahru Rd
- Pearl's Hill
- 31B Keong Saik Rd

6 References

Bashar, A., AdmadI, I., & Wasiq, M. (2012). Effectiveness of Social Media as a Marketing Tool: An Empirical Study. *International Journal of Marketing, Financial Services & Management Research, 1*(11).

Han, J. (2020). [Number of Pole Dancers in Singapore].

7 Annex

Class Offerings by Instructors *(to be input by user for every term)*								
Instructor Name	Tricks - Beginner	Tricks - Intermediate	Tricks - Advanced	Choreography - Beginner	Choreography - Intermediate	Choreography - Advanced	Choreography - Open	Conditioning for Pole
Alicia	X	X		X	X		X	
Azila	X	X		X	X		X	
Christina				X			X	
Farrah	X	X			X	X	X	
Ileane	X		X	X	X	X		
Leron	X		X	X				X
Meiyen		X	X		X	X		X
Michelle	X		X		X	X		X
Total	**6**	**4**	**4**	**5**	**6**	**4**	**4**	**3**