STAR BBQ (Process Management Project)

I. Introduction

The document analyses the processes employed by an authentic Korean cuisine and Barbeque restaurant, StarBBQ in the Champaign, IL area with the intent of offering suggestions to improve profitability utilizing concepts from Process Management theory. To achieve this, our team visited the restaurant couple of times. Based on our observations and analysis of the processes and situation, we made recommendations, which are discussed in detail, in the subsequent sections.

In addition to Korean cuisine, Star BBQ also offers Japanese cuisine with variety of Sushi and fusion rolls. Please refer to Exhibit B to understand the employee hierarchy chart of the restaurant. An analysis of the menu led to the observation that the menu is quite extensive with over 155 dishes. 80 percent of these were Korean dishes. The restaurant is positioned as a family friendly restaurant, providing a pleasant and spacious ambience. The restaurant structure is explained in Exhibit A. The restaurant has a weekly day off on Monday and offers a food delivery service on all the working days.

The restaurant has been operating for two years, however, has been struggling to break-even on its initial investment. With average occupancy being less than 60% even at peak time on weekends, the average customer footfall is 50 customers per day (Exhibit C). To assess the problem in depth, we also reviewed the reviews for the restaurant (Exhibit D). After doing this, we could summarize that while Star BBQ's food has received positive ratings, customers feel that it takes a long time for the ordered food to be served. Based on this, next we decided to look into the restaurant's processes from seating arrangement, inventory management, human resource management, average waiting time, etc (Exhibit E and F). This enabled us to figure out the most critical reasons,which factors for low quality service mentioned below in the ***Identified Problem*** section. Also, to improve the overall service process, we came up with recommendations based on an analysis of these problems.

II. Identified Problems

Our visit to Star BBQ to observe their process helped us identify the following problems. These are listed below:

1. No one was there to greet the guests at the podium of the restaurant. Also people in waiting area do not have access to bar as it is at the other end of the restaurant (Exhibit A). Due to this, even during rush hours, bar area stays empty and relatively smaller waiting area is crowded with hungry and thirsty customers. They have bar access after securing the table which may have adverse effects on overall flow time of customers occupying tables.
2. High waiting time for food to reach the guest. We went through reviews and comments on yelp.com as well as other restaurant reviewing websites (Please refer to Exhibit D). People loved the food at the restaurant but hated that they took so long to serve. So after deep-diving we figured out that the bottleneck is Korean food as it takes more time to prepare. As a result, there is a time gap in serving Korean and Japanese foods. For example, 2 of the team members had to keep waiting for Korean foods even after finishing sushi, the japanese food. The flow time for Korean food was '37 mins' and the flow time for Japanese food was '16 mins' (Please refer to Exhibit H).
3. Incorrect seating arrangement - 16 tables are all of the same size for 6 people and there is no other seating arrangement for smaller group. Every table has provision for barbeque and depending on the customer order, it is utilized. All fixed size tables significantly increase waiting time due to under-utilization of the space and reduces the overall profit for the restaurant. It also affects the customer experience (Please refer to Exhibit I).
4. Huge Menu - As they are offering 155 items on the menu, they have to maintain a huge variety of inventory. So the food wastage is high. Also for sushi, it is important to use fresh meat and vegetables. Replenishing the inventory of raw material for sushi is done every second or third day. This not only increases the ordering cost and inventory holding cost but also the food wastage is high due to improper management of the inventory (Exhibit J).
5. Separate work-areas - The restaurant has three chefs for cooking Korean, Japanese and pre-cooking Barbeque variety. But every chef focuses on respective orders. Due to which, chef prepare foods in separate ways and they cannot help each other based on demands. As a result, there is a time gap in serving Korean and Japanese foods.

III. Recommendations

Our recommendations will improvise the process by applying concepts from process management (Please refer to Exhibit E). Also we also focus on minimizing the cost and more options of revenue generation to maximize profit. This will improve operational efficiency with maximum service level. (Please refer to Exhibit M and N for recommendation analysis)

1. Lean Inventory Management

- **Reduce the Menu size**

With more than 100 items in the menu, it takes considerable amount of time preparing foods. While, dishes that are less frequently ordered increase variability and do not allow for making pre-cooked stocks as demand can't be estimated, this is especially a problem for Korean meal dishes. This is because Korean meals have comparatively higher inventory costs than Korean BBQ and Japanese meals when also considering percentage contribution to profits and demand for the three meal types. Added to this problem is the high flow time of Korean meals as compared to Japanese meals. This inference can be drawn when Exhibit H is analysed. Based on this we recommend to reduce number of Korean meal dishes that are generally not frequently ordered while keeping the menu intact for Korean BBQ and Japanese meals. This will reduce the inventory carrying cost and the wastage considerably that results due to heavy stocking of goods and results in high inventory turns annually. Also better inventory management can be achieved if the manager develops a good supplier relationship and understand sales trend and variances in close details and estimate the safety cost to maintain high service level.

- **Weekend special Japanese Sushi**

The principal of Just-In-Time (JIT) production can be used for preparation of Sushi wherein produce only when the demand is high i.e on weekends (Exhibit G). Sushi ingredient causes higher inventory cost due to frequent order cycle. After the research, we found out 80% of raw fish ingredients are only used for sole sushi menu and they are the main reason of increased inventory cost. So our suggestion is that offer sushi only on weekends. So, if the lead time is 3 days then order should be placed on every Monday. This change will bring in exclusivity to the restaurant and have high business growth.

2. Partial Flexibility among Chefs

- **Labor utilization**

As per the exhibit 2 the control chart triggers that the flow time for receiving the food is very high and needs to be attended. The Japanese chef remains idle considering linear distribution of demand flow. So, the strategy to decrease flow time and have maximum labor capacity utilization is by having partial flexibility (Exhibit K). Along with their own cooking expertise, every chef should be trained basic minimum with other cuisine so that during rush hours, demand can be handled more efficiently. This will affect the overall flow rate of the restaurant.

3. Process Improvement

- **Restructuring table size and Bar**

By focusing on adding some smaller-sized tables, restaurant can increase the profits because these small-sized tables allow restaurant to accept larger number of varied sizes of customer groups. Staff can separate or put these small size tables together according to the customer size. A flexible table size will increase customers satisfaction by availability of more tables and overall service level. Another change is having bar placement changed to the entry side so that customers can use the bar area and enjoy drinks so that the waiting time is slowed down and also increases sales. The restructuring has some cost associated with it and needs re-plan of budget.

- **Focus on delivery orders during the weekdays**

As restaurant is located far away from the campus, by focusing on delivery during weekdays of freshly made pre-packaged lunch boxes the restaurant can meet an unmet need for students that need to save time during lunch while also increasing profits and gaining visibility as a Korean restaurant. Another option could be a food truck parked on campus serving few best-selling dishes. Also partner with food delivery aggregators, currently it uses GrubHub channel for delivery. Demand forecasted for on campus food serving or delivery is shown in Exhibit L.

- **Employee-Customer Relationship**

Solicit timely feedbacks to improve engagement and bring more ideas into the table. Either provide feedback form or have instant feedback gathered on a single system using a tablet. Stay in touch using technology through social media and rewarding system.

Exhibit A: Restaurant Structure

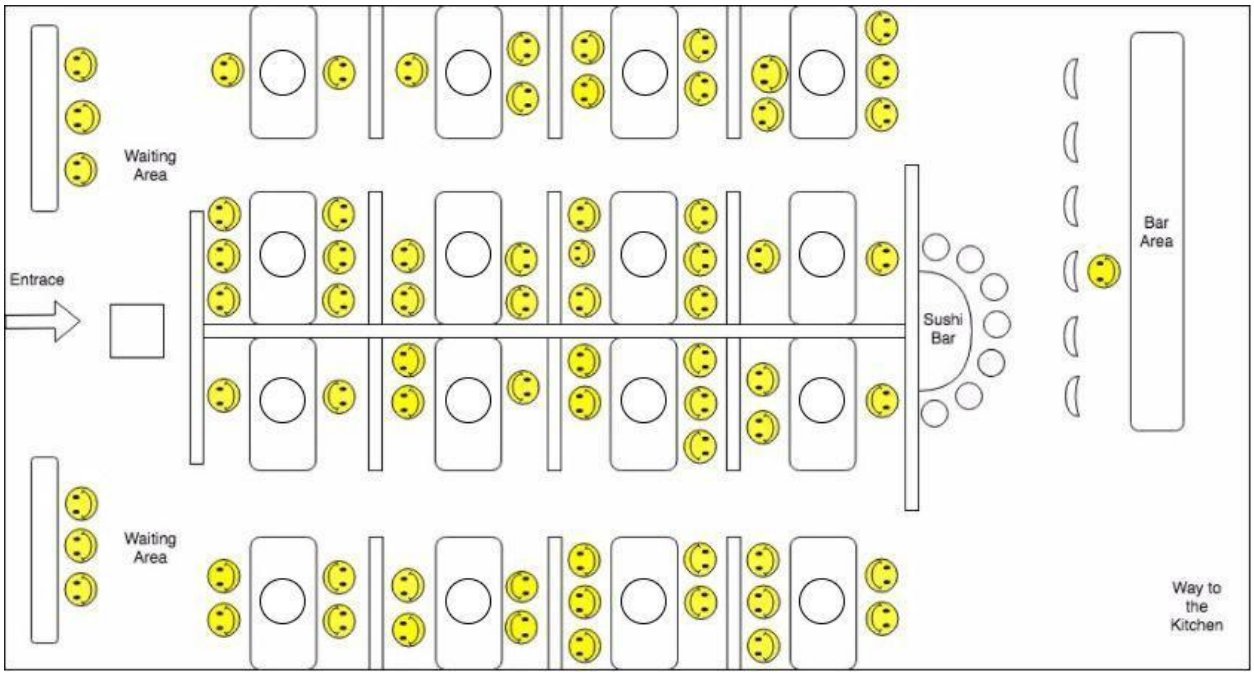

Figure 1

Exhibit B: StarBBQ Employee Hierarchy chart

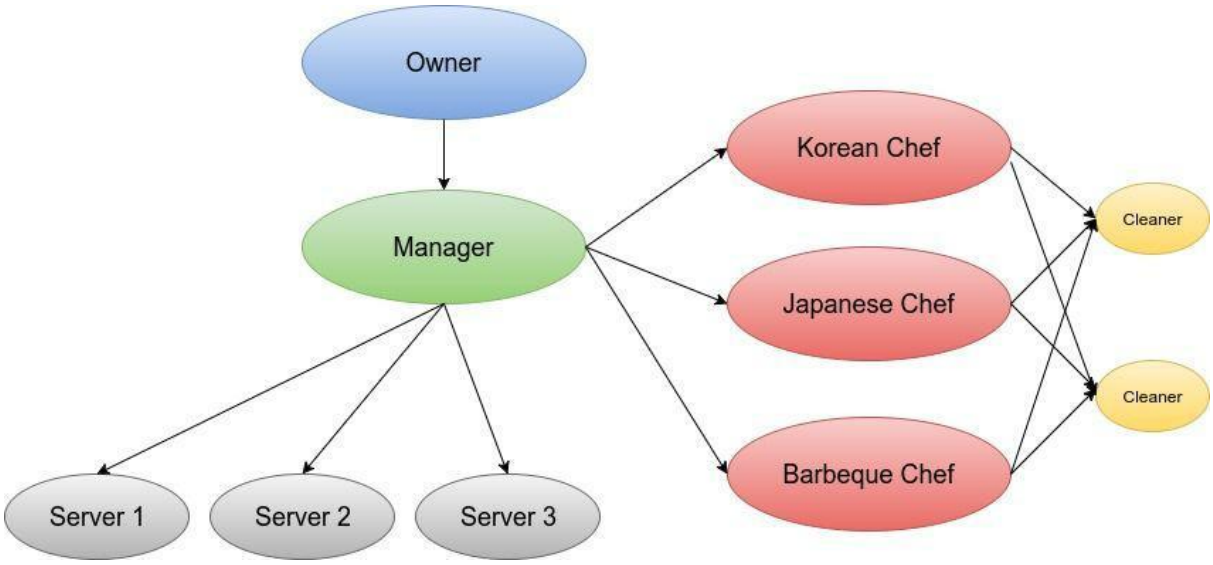

Figure 2

Exhibit C: Weekly Average Customer Visit

Figure 3

Exhibit D: Reviews on restaurant

Figure 4

Exhibit E: Current Guest Arrival to Departure Process Swim-lane Flow

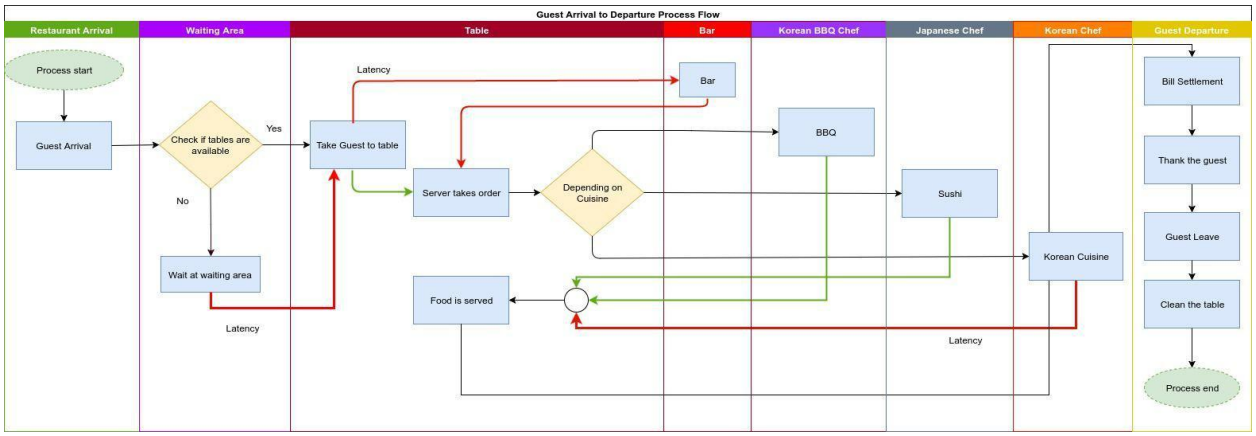

Figure 5

Improved Guest Arrival to Departure Process Swim-lane Flow

This process reduces the latencies of the current processes by applying different concepts like partial flexibility, rearrangement of steps involved in the process, restructuring of resources to improve utilization of the capacity of the resources etc

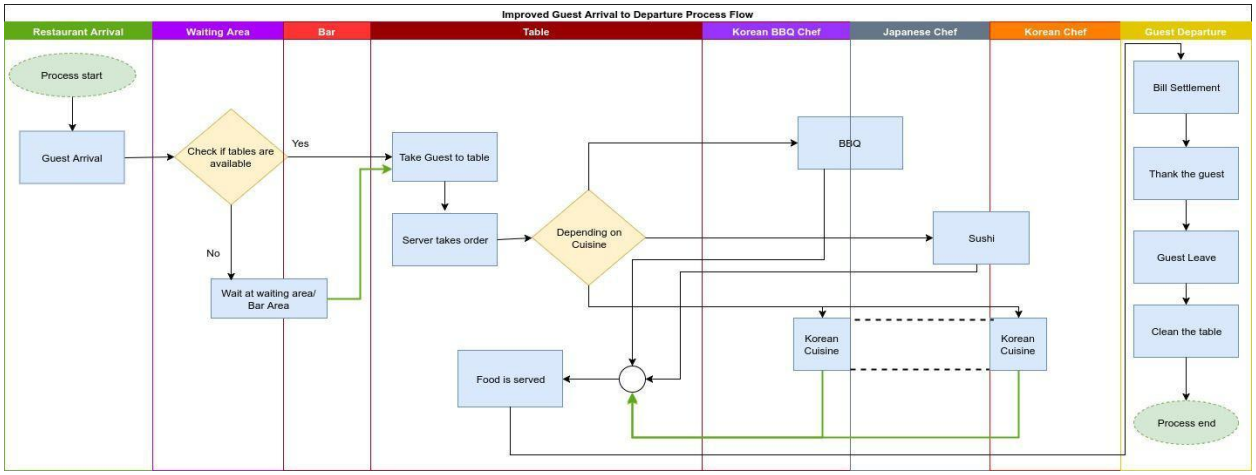

Figure 6

Exhibit F: Inventory Management Swim-lane Flow Diagram

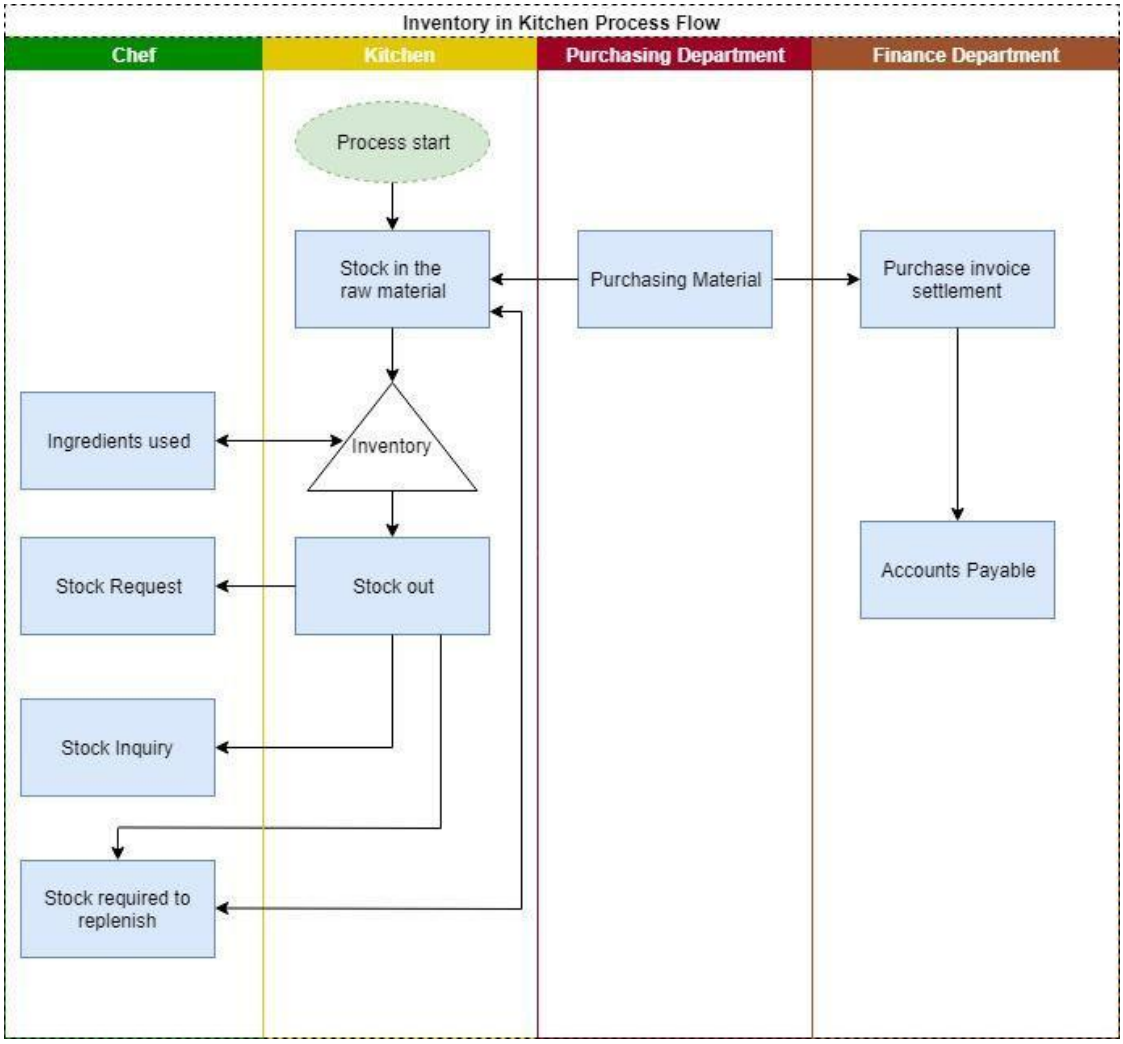

Figure 6

Exhibit G: Sushi Weekly Average Demand

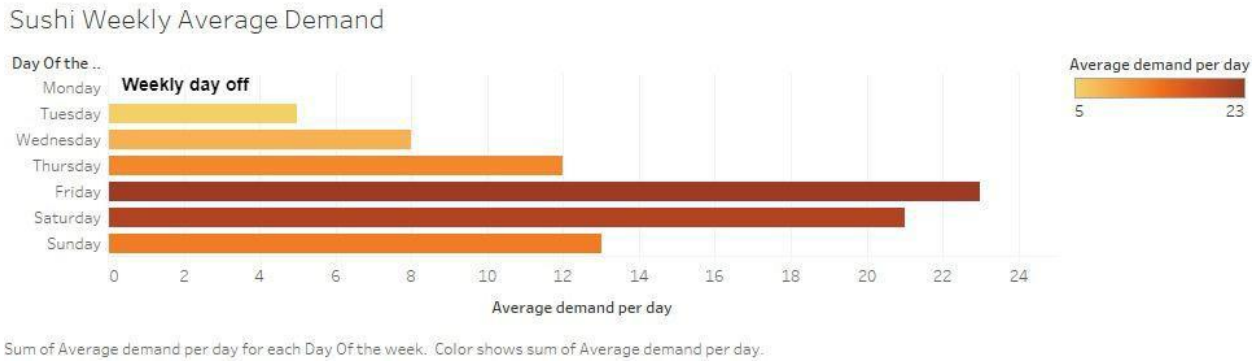

Figure 7

Exhibit H: Average preparation time in accordance to Cuisine

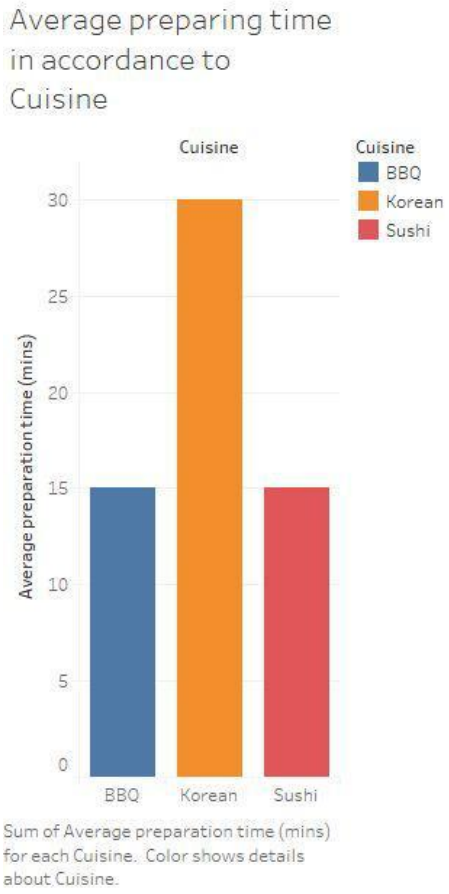

Figure 8

Exhibit I - The process is out of control and indicates instability

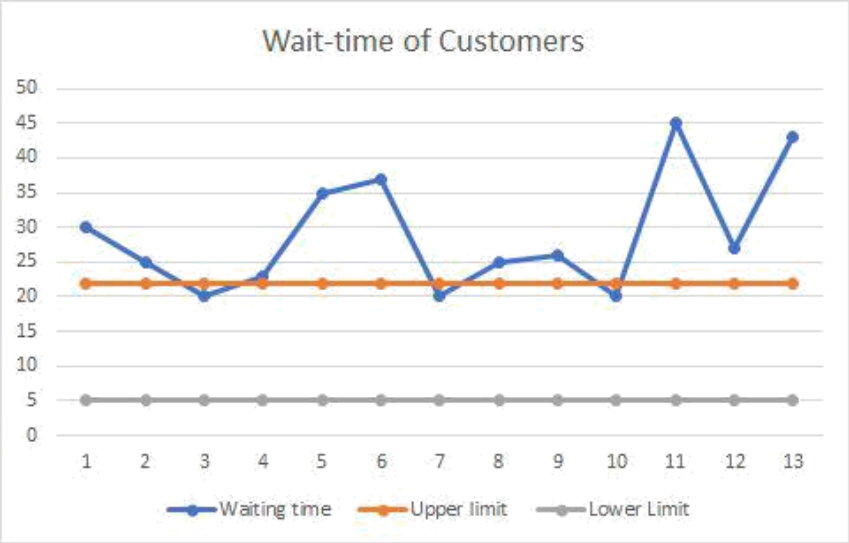

Figure 9

 # Time between ordering and arrival of the meal

Exhibit J: Demand, Inventory Cost and Profit Distribution per cuisine

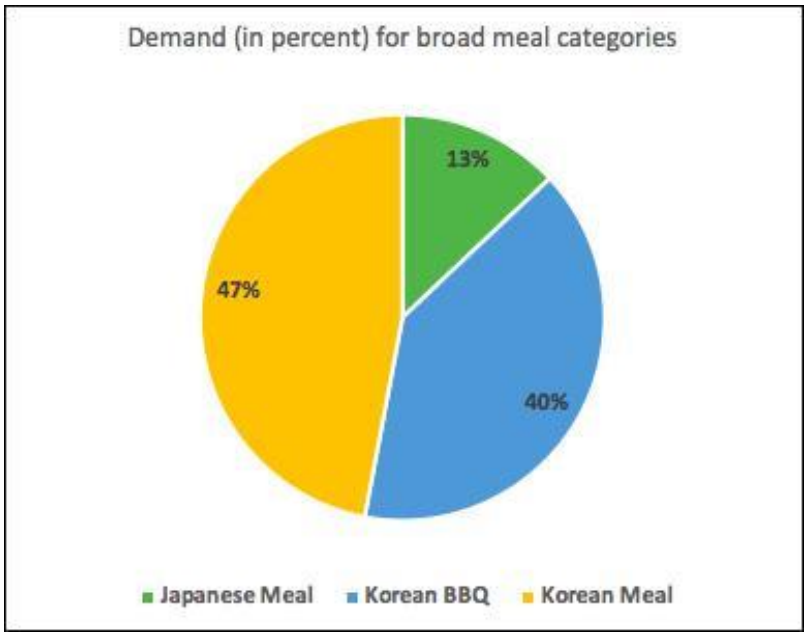

Figure 10

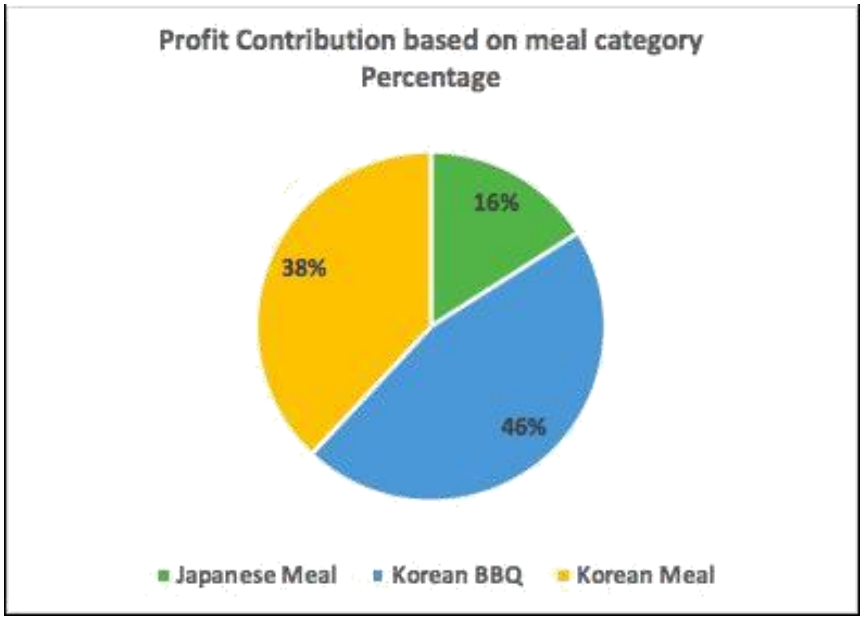

Figure 11

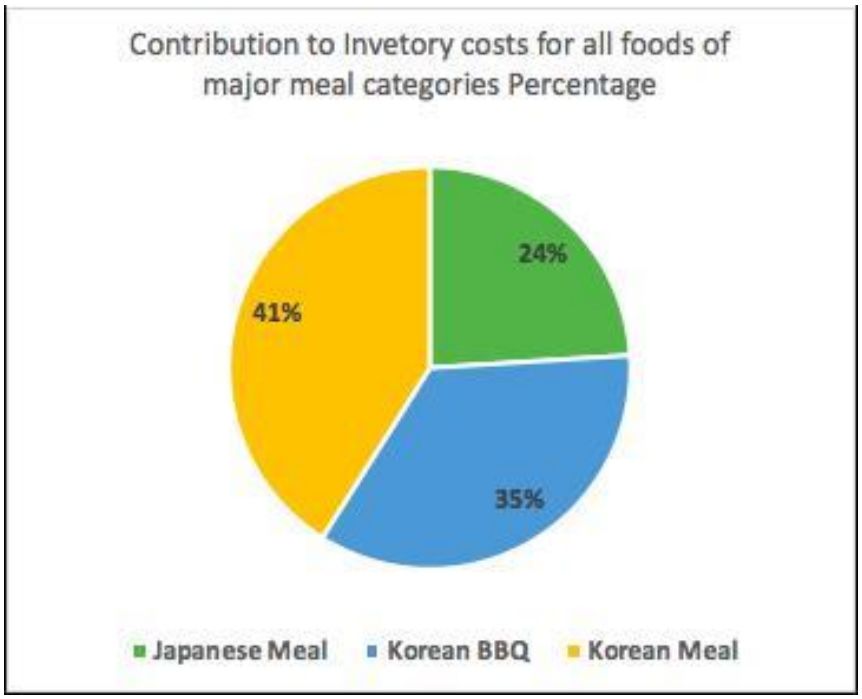

Figure 12

Exhibit K: Partial Flexibility

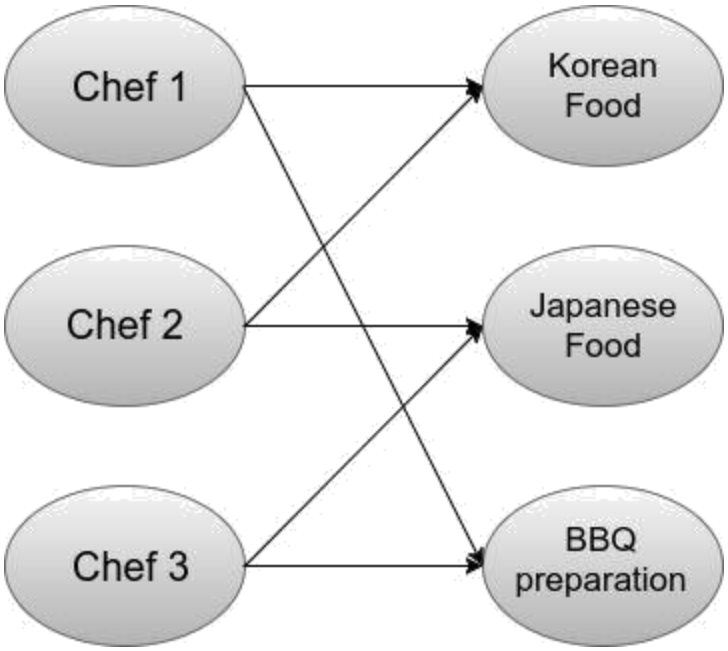

Figure 13

Exhibit L

This exhibit estimates average daily demand for Star BBQ delivery boxes or on campus food serving via food truck for international students in the University of Illinois, Urbana-Champaign campus. The estimation utilises data on International student enrolment published by International Student & Scholar Services (ISSS), University of Illinois.

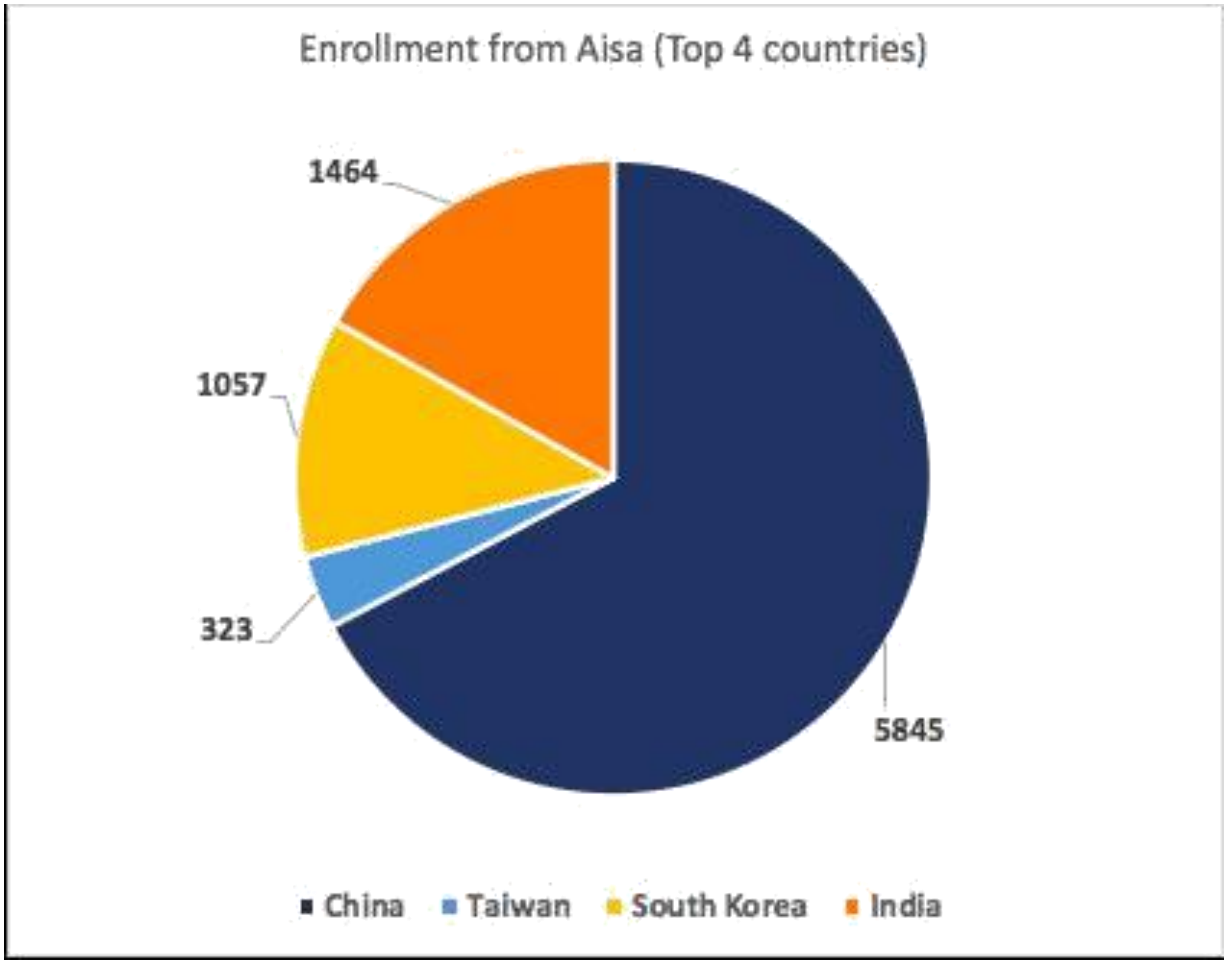

Figure 14 (*Source: Fall 2017 International Statistics, International Student & Scholar Services (ISSS), University of Illinois)*

As can be seen from the chart above students from China, South Korea and Taiwan form a student population of 7,225 students. Additionally, total student enrollment in the university in 2017 (University of Illinois, Division of Management Information) was 47,826 student. If we subtract the 7,225 student (from China, South Korea and Taiwan) we get a student population of 40,601.

Now considering that about 4% of the total Chinese and Taiwanese students (247 out of 6,168), 6% of the total South Korean students (63 out of 1,057) and 3% of the remaining student population (1,218 out of 40,601) would buy a lunch box twice from Star BBQ in a month, then average demand for star barbeque is:

Total days (disregarding Saturdays, Sunday and Monday)[1] = 20 days

Total order by a single person in a month = 2

Total demand = 2 X [(4% X 6,168) + (6% X 1,057)+ (3% X 40,601)] = 2 X [247 + 63 +1218]

= 2 X 1528 ~ 3050

Total demand = 3050 boxes per month

Average demand = 3050 / 20

Average demand = 152 boxes per day

If each box contributed $12 (on average) to revenues the increase in revenue

Per day = $12 X 152 = $1,824

Per month = $12 X 3,050 = $36,600

[1] Star BBQ is closed on Monday. For Saturday and Sunday we expect the demand would fall drastically

Exhibit M: Recommendation Execution time and Profit Relation Analysis

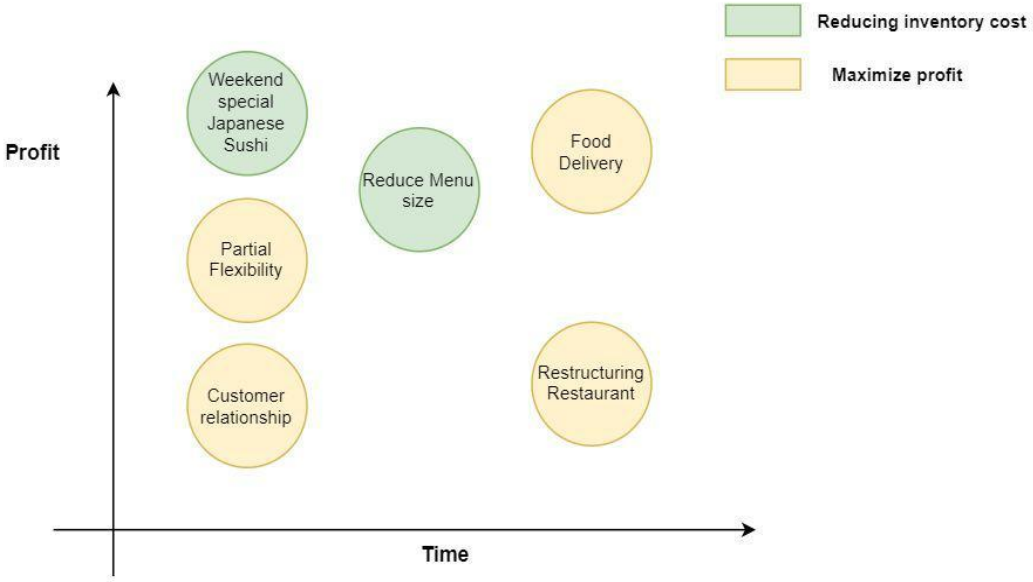

Figure 15

Exhibit N: Achievable Targets

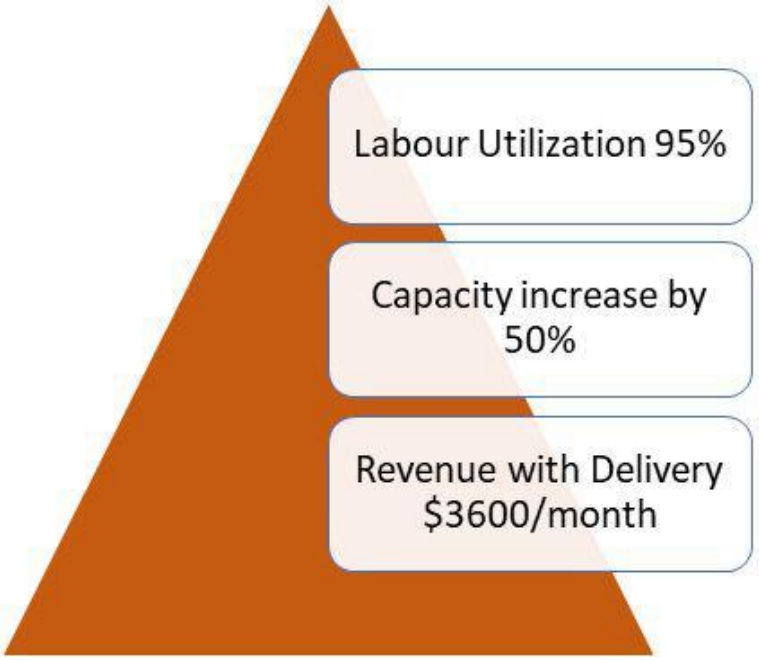

Figure 16

Concept References

Sr. No	Concepts	Exhibits
1	Swimlane	E, F
2	Control charts	I
3	Partial Flexibility	K
4	Labour utilization	N
5	Capacity rate	N
6	Lean Management	
7	Inventory Control	
8	Variability	
9	Just-In-Time	
10	Inventory turns	
11	Stock Out	
12	Safety Stock	
13	Inventory carrying cost	
14	Ordering cost	
15	Safety stock	
16	Service level	
17	Flow time	
18	Order Cycle	

References

https://isss.illinois.edu/download_forms/stats/fa17_stats.pdf

https://isss.illinois.edu/about/statistics.html

http://www.dmi.illinois.edu/stuenr/class/enrfa17.htm

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