

*Roxy's Grilled Cheese***Case Summary**

This case study is about James DiSabatino an entrepreneur and food truck owner in Boston, Massachusetts. Students explore operational challenges and act in the role of the food truck owner.

An owner's assessment of their current situation is presented and students are expected to analyze root causes of existing issues and recommend actions. To reinforce basic tools of operations management in a food truck setting, the purpose of the case is to introduce students to the concepts of process analysis and decision making related to food truck design and equipment placement.

Teaching Objectives and Target Audience

Components of operations management are applied including bottleneck analysis and design recommendations aiming to achieve process efficiency.

It is relevant for undergraduate levels and is appropriate for food-service/restaurant operations or hospitality design classes.

The case provides an opportunity for students to engage in further discussion and emerging trends and challenges in service delivery systems.

Learning Objectives

- After studying this case, students should be able to: e.g.
- Understand operation analysis principles
- Perform a bottleneck analysis
- Calculate throughput rates
- Understand how equipment selection can improve operation

Methods of Collecting Information and Acknowledgment

Information for this case study was largely collected via interviews and observations. The authors visited the food truck several times and interviewed the owner on multiple occasions. The case is based on true information; however some details have been altered to make the case suitable for classroom usage.

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Teaching Approach

- The case can enhance hospitality courses in various ways.
- The authors suggest that the case is covered in face-to-face class setting.
- It can be used as a research assignment to explore the current

state of food truck industry and operational challenges business owners are dealing with.

- Instructors may want to invite a local food truck owner to discuss business and operational challenges they face.
- Alternatively the case can also be used for online education programs.

Class Instructions

The class time can be broken down into the phases and five stages as follows: (85 minutes)

I – Class Discussion

- The Food Truck Industry (10 minutes)
- "For further discussion" 3.1.-3.2. (10 minutes)

II – Operations analysis

- Discussion Questions 1.1.-1.2.-1.3.-1.4. (20 minutes)

III – Waiting Line Management

- "For further discussion" 4. (15 minutes)

IV – Food Truck Design

- Discussion question 2. Generate Alternative Solutions (20 minutes)

IV – Conclusion

- In order to address the core dilemma, the instructor should summarize the best alternatives students identified and present the suggested solution. (10 minutes)

Answers to the Discussion Questions and Suggested Solutions**1. Please examine Table 1.**

1.1. What is the throughput time? What is the current throughput rate per minute and per hour assuming that each sandwich is made to order? What is maximum or total capacity of the food truck operation?

Throughput time: In our case the customer is moving through the system in 640 seconds.

The maximum or total capacity is only 9.6 customers per hour. (The capacity of the person who has the lowest throughput rate will dictate the total capacity)

1.2. Who is the bottleneck, if any? The bottleneck is the Grill person (The employee who has the lowest throughput rate)

1.3. Add two more employees and rearrange the food truck operation by shifting tasks between the employees in order to possibly relieve the bottleneck and achieve the highest possible total capacity.

Students' solutions will vary, for suggestions see Table 3.

Table 2

Suggested Solution to Table 1

	Employee 1 Order Taker	Employee 2 Grill Person	Employee 3 Fry Person	Employee 4 Expediter
Task	Task 1: Takes Order & Accept Payment Task 2: Get Drinks	Task 1: Put Sandwich on Grill Task 2: Grill Sandwich Task 3: Cut & Package Sandwich	Task 1: Cook & Season Fries Task 2: Package Fries	Task 1: Assemble Order Task 2: Hand Order to Guest
Task Length	Task 1: 25 seconds Task 2: 20 seconds	Task 1: 10 seconds Task 2: 360 seconds Task 3: 15 seconds	Task 1: 150 seconds Task 2: 30 seconds	Task 1: 20 seconds Task 2: 10 seconds
Throughput Time	45 seconds	385 seconds	180 seconds	30 seconds
Throughput Rate per Minute	$1/45 * 60 = 1.33$	$1/385 * 60 = 0.16$	$1/180 * 60 = 0.33$	$1/30 * 60 = 1.99$
Throughput Rate Per Hour	$1.33 * 60 = 79.8$	$0.16 * 60 = 9.6$	$0.33 * 60 = 19.8$	$1.99 * 60 = 119.4$

The principles stems are drawn from theory of constraints (TOC). The theory of constraints is an approach to systematic assessment of the constraints that hinder any organization to achieve their organizational goals (Krajewski, Ritzman & Malhotra, 2007; Schroeder, 2008). This approach will allow the food truck owner to increase systemwide profit if bottlenecks are identified and relieved. Instructors may assign to review the related book chapters of the above two books.

1.4. Re-calculate the throughput rate per hour and in minutes. Students' solutions will vary depending on their plan. Students will notice that shifting tasks won't significantly increase the grill capacity.

2. The team at Roxy's is looking for advice as to how the layout can be rearranged to become more efficient.

Opportunities to Create a More Efficient Environment

Creating a window at the front of the truck where orders can be taken and another window in the back of the truck where orders can be picked up: (1) Reduces customer crowding (2) Separates the employees taking and handing off orders to customers so they do not interfere with each other. (3) Windows are located near the ends of the truck where the employees taking and handing off orders to customers will not interfere with other food preparation employees. (4) Planning open space in front of the windows so employees are not taking and handing off customers orders over equipment

Moving the beverage station close to the service window: (1) Enables beverages orders to be handed to the customers before they move to the back of the truck to wait for their sandwich (2) Beverage employee will not interfere with the hot-food preparation employees

Multiple small reach-in refrigerators are more flexible than one large worktop cooler

Relocating the sink and creating the majority of refrigerator storage near to the food truck's entrance allows for ease of re-stocking.

Relieving the bottleneck: The range stove can be eliminated and a new grill with greater area added: (1) More surface area for sandwiches to be cooked at the same time/batching As per the case, 80% of orders comprise the two signature sandwiches. During busy periods they should continuously grill these sandwiches.

New technology, such as iPad based POS systems or smartphones can contribute to faster service. The authors recently observed a simple but creative way to speed-up the service delivery process. An actual cash-box was placed outside the food truck counter and customers were encouraged to get their change themselves.

Answers "For Further Discussion" Questions

3. What are the pros and cons of starting a food truck?

Here are some ideas for instructors to start the discussion.

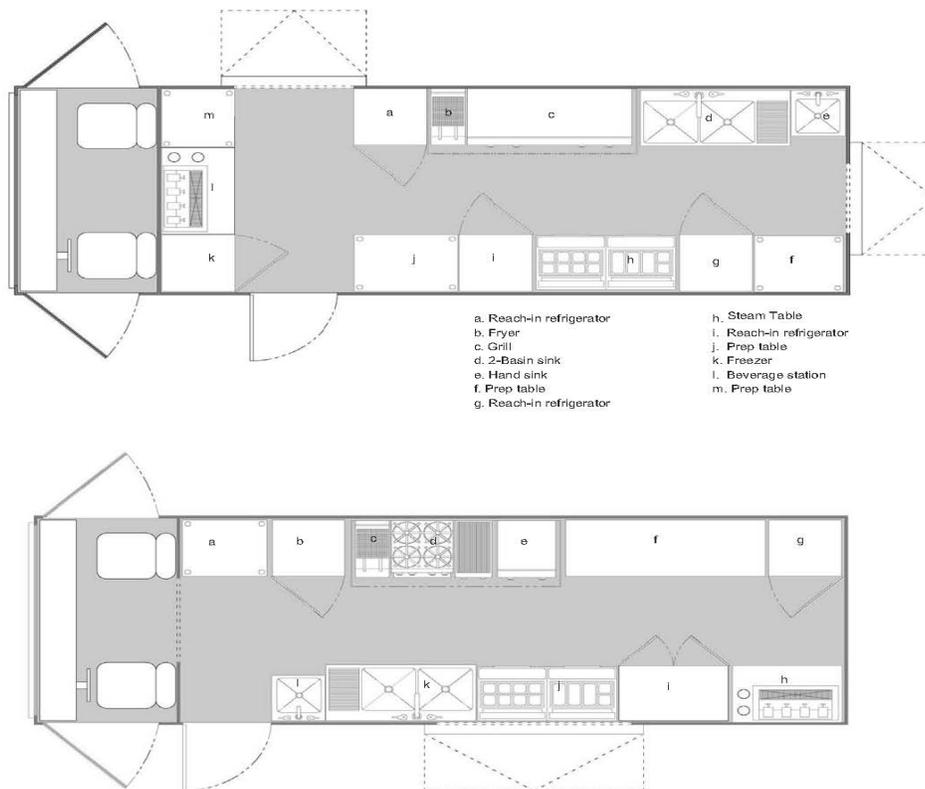
Table 3

Suggested Scenario

	Order Taker	Beverage Person	'Fire' Person	Grill Person	Fryer	Expediter
Task	Takes Order - Accept Payment	Get Drinks	Put Sandwich on Grill	Grill Sandwich & Cut & Package	Cook - Season Fries & Package Fries	Assemble Order & Hand to Guest
Task Length	25 seconds	20 seconds	10 seconds	360 seconds 15 seconds	150 seconds 30 seconds	20 seconds 10 seconds
Throughput Rate per Minute	$1/25 * 60 = 2.4$	$1/20 * 60 = 3$	$1/10 * 60 = 6$	$1/375 * 60 = 0.16$	$1/180 * 60 = 0.33$	$1/30 * 60 = 2$
Throughput Rate Per Hour	$2.4 * 60 = 144$	$3 * 60 = 180$	$6 * 60 = 360$	$0.16 * 60 = 9.6$	$0.33 * 60 = 20$	$2 * 60 = 120$

Figure 2

Suggested Food Truck Layout



Pros

- Low cost entry – relatively low start-up costs compared those of a traditional restaurant.
- Food trucks carry only a few items that support business efficiency.
- Lower fixed cost
- Theoretically, mobile eateries can follow the crowd and operate where the demand is.
- Food trucks can tap into different customer bases with little effort.
- Offering a fast dining alternative to customers.
- Operators can easily extend an existing restaurant brand into

- a food truck; use the food truck as an advertisement vehicle.
- A well identified theme, core offering or signature item can carry the flag.
- Food trucks are hip; can easily capitalize on social media and can create a buzz quickly.
- Street food is trendy; food trucks can showcase culinary innovations, organic food, local producers and farmers, etc.
- Opportunities to benefit from competitors, e.g. creating a mobile food court.

Cons

- The lower nominal fixed costs of a food truck are coupled with lower capacity and lower productivity that results higher fixed costs per unit. In addition a commissary or rented preparation/cooking facilities are needed.
- Licensing fees and various permits add to start-up costs.
- Parking space is needed for the food truck during and outside business hours.
- The cost structure often results in higher prices than that of traditional stores.
- Restricted vending locations and scheduling rules.
- Threat of continuous flow of new entrants – difficult to develop a durable strategy against them.
- Existing restaurants may perceive food trucks as unfair competitors that violate their trading area, hurt their business.
- No liquor licenses are available; consequently liquor sales cannot offset high food costs.
- The mobile platform comprises technology related challenges, such as difficulties to operate a POS system.
- Unexpected troubles make the operation harder, e.g. “propane going down, or a flat tire, or a hood not working, you hit pot holes, tree branches.” (Tanyeri, 2011).
- Food preparation is a challenge; limited inventory space is available.
- Sanitation and safety risks are associated with operating a food truck.

3.1. Many of food truck operators are interested in adding a brick-and-mortar location. Why is that?

Truck operators often consider their mobile eateries as an opportunity to test their concept; not necessarily as a long term venture.

3.2. How can traditional restaurant chains benefit from using food trucks?

- Here are some pointers that can guide class discussion. (Brandau, 2010).
- Build day-parts: e.g. restaurants struggling with lunch business can generate incremental revenue by capturing an audience that is found outside of their trading area,

- Reach out to niche markets, e.g. positioning outside bars or special events,
- Introduce food trucks to build catering business,
- Use the food truck as a public relations (such as charity events) or advertising device,
- Implement a food truck as an R&D instrument; test new menu items,
- Use food truck to achieve sales promotion initiatives, e.g. free trials, food sampling at reduced prices,
- Publicize conceptual changes; brand repositioning.

4. As discussed in the case, during busy times, total wait times from arrival to departure can be upwards of 20 minutes. There may be unusual tactics Roxy’s can use to better engage guests and keep them satisfied during long wait periods. What might some be?

According to the seminal article of Maister (1985), customers will better tolerate waiting times if we consider the following four principles. (See also Dickson, Ford, & Laval, 2005; Szende, 2013), Here are some suggested techniques for each of the categories for instructors.

Unoccupied Time Feels Longer Than occupied Time

- Handing out menus to waiting guests.
- Offer daily conversation topics to patrons in line.
- Install cell phone charging station in waiting area.

Uncertain or Unexplained Waits Feel Longer Than Explained Waits

- During busy periods assign an employee to interact with guests and update them about the expected wait.
- An electronic board could indicate the number of the order to be served

Anxious or Uncomfortable Waits Feel Longer Than Comfortable Ones

- Ensure that waiting guests are not blocking the way of ordering guests; make sure the waiting area is clean and tidy.
- Offer complimentary beverages or food sampling.
- Smartphone readable quick response code (QR) displayed, allows customer to play a game while waiting.

Waits Feel Shorter if the Physical Waiting is Eliminated

- Give out pagers; guests walk around in the area while waiting.
- Or get cell phone numbers; call or text them when their order is ready

Additional Team Activities

Interviews

- Break class into small teams.
- Ask them to visit local food truck operations; students should conduct interviews with food truck owners. (Depending on the class audience and the focus of the course, the interview questions should vary.)

- A 15 minute presentation using visuals should highlight teams' most interesting findings.

Field Research

- Student teams should investigate the costs of local license and permit requirements for food trucks compared to that of brick-and-mortar restaurants.

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