

# **Upstream Supply Chain Activity of a Start-up Restaurant: A Case Study in Foodie Panda**

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## **Abstract**

The restaurant supply chain starts from the raw material collection to final product delivery. In today's digital world restaurants are maintaining both traditional and digitalized methods for supply chain processes. In the first phase of the process, fixing the quantity of raw material demand analysis is a crucial factor for making decisions to avoid wastage of product or even stock-outs. As the raw material involved in the process is perishable it's very important to keep it in the right quantity and quality standard to avoid serious issues to the people eating it. This study aims to analyze the upstream supply chain process of a startup restaurant. Upstream supply chain activity is linked with the supplier and raw material intake. Direct observation is done regarding their upstream supply chain activity and a theoretical study is done based on it. Information regarding the various sources of the raw material intake in that restaurant is collected. Further, analysis is done to identify the Strength, Weaknesses, Opportunities, and Threats of their Supply chain activities. In this study, suggestions are incorporated with managerial implication to enrich their Strength, make more utilization of their opportunities, washout the weakness and maintain barriers from potential threats. Correlation analysis is done to evaluate effect of supplier delay and preparation time delay on missed orders. It is found that both supplier delay and Food preparation delay is highly correlated to missed food orders.

## **Keywords**

Perishable Raw material, Demand Analysis, Forecasting, Correlation, SWOT.

## **1. Introduction**

Supply chain Management (SCM) is the chain of process that starts from procurement of raw material to delivering final products to customers. The nature and participants are different for various types of supply chain. Industrial supply chain is differed from a supermarket supply chain, so and so. The supply chain activity can be divided into three based on supply chain flow, the main activity focuses on role of suppliers, internal functions of company and of customers (Al-Shboul et al.,2017) This paper discusses about a restaurant supply chain. A restaurant has several elements like buying raw materials, cooking food items, taking orders, dining, deliveries, billing and many more backend processes. A simple mistake in supply chain management can cause huge revenue loss, product wastage; can affect brand image and customer loyalty, sometimes leads to severe food borne illness type of issues. Thus, a restaurant manager should manage the supply chain with utmost care. The study emphasis on upstream supply chain management. Upstream supply chain practice was developed by Govidan et al. (2014). The supply chain practice with focuses on role of supplier including strategic supply chain partnerships (Sundaram et al., 2016). By implementing proper supplier management internal activities can build the upstream integration. The firm tries to communicate with upstream suppliers to get the quality items based on the requirements (Truong et al., 2017). Supply chain activity is a practice adopted to produce and effective and efficient process in managing supply chain flow to coordinate the requirements based on customer demand (Al-Shboul et al.,2018). Restaurants involve suppliers in solving problems to build a perfect purchasing strategy (Tarigan et al., 2020). Restaurant can build market intelligence to adopt contingent situation occur among the internal and external factors such as customers, competitor, technology changes and regulations (Alnawas and Hemsley Brown, 2019). The firm's capability to communicate and integrate with suppliers will impact restaurant when they get environmentally friendly material and materials which have longer lifetime (Sautma et al.,2021). Restaurants can depend on purchasing strategy to build collaborations with suppliers in providing eco labeled products and to meet the requirements based on government regulations (Tarigan et al.,2020).

FOODIE PANDA is a new restaurant started in pallichal, Trivandrum. It offers dinning in and delivery facility. They completed all their mandatory government proceeding and started operation by mid of January 2022. They offer good food in great nature ambience with live music performance. This paper intended to learn more about

a startup restaurant supply chain activity. The supply chain area studied is Raw material collection. Based on the nature and availability of item their exist multiple suppliers. Once the study is complete, it will help to figure out the area of weakness and suggestions for improvement.

In this post pandemic era all business is under great financial crisis. Specifically for startup business firms it's very difficult to reach a growth point. Here the study is about a startup restaurant firm. As it's a service sector in this post pandemic period the firm is striving hard to achieve its growth curve. As far as restaurant is concerned Supply Chain Management is an important factor need to be strictly monitored. For a new restaurant like Foodie Panda no studies are done about its activities. If we conducted study, we could know more about the weak areas and strengthen them to achieve great potential.

### **1.1 Objective of the study**

It's very important to maintain efficient supply chain management to maintain the stable condition of restaurant in the starting phase. At the start up stage the restaurant may not be incurring profit margins, it will be a condition in between profit and loss. In order to bring up to the growth phase and profit margin condition it is very important to stabilize the upstream supply chain management and to rectify the existing supply chain inefficiency.

- To study the upstream supply chain of Foodie Panda Restaurant.
- To analyze the existing supply chain using SWOT
- To identify the impact of supplier delay and food preparation time delay on missed orders

## **2. Review of Literature**

The supply chain activity can be divided into three based on supply chain flow, the main activity focuses on role of suppliers, internal functions of company and of customers. All the three areas are interconnected. The activity of one area will gradually affect the function of the other areas. (Al-Shboul et al.,2017). Upstream supply chain practice was developed by Govidan et al. (2014). Upstream supply chain activity deals with the connection between the raw material supplier and manufacturer or processor. It refers the upstream flow of materials towards the processing system. The supply chain practice with focuses on role of supplier including strategic supply chain partnerships (Sundaram et al.,2016). Strategic supply chain management is ensured to maintain competitive advantage. All planning in strategic perspective will make the system flow more efficient and effective. The firm tries to communicate with upstream suppliers to get the quality items based on the requirements (Truong et al., 2017). The availability of right quality raw material at right quantity at right place and time will improve the supply chain flow. It will eventually lead to profit.

Supply chain activity is a practice adopted to produce, effective and efficient process in managing supply chain flow to coordinate the requirements based on customer demand (Al-Shboul et al.,2018). Forecasting customer demand is an important aspect of maintaining the required stock level. Based on the customer demand the supply chain flow can be planned to avoid pilling up of raw materials. Restaurants involve suppliers in solving problems to build a perfect purchasing strategy (Tarigan et al.,2020). As a restaurant is concerned most of their raw materials are the prime source of food preparations. The stock is normally refilled in day-to-day basics as most of the required raw materials are perishable in nature. Thus, a perfect supplier relationship must be ensured for timely supplies of raw materials at right quality and quantity. Restaurant can build market intelligence to adopt contingent situation occur among the internal and external factors such as customers, competitor, technology changes and regulations (Alnawas and Brown, 2019). The awareness of both internal and external factors will help to take contingent decision based on the prevailing circumstances. The firm's capability to communicate and integrate with suppliers will impact restaurant when they get environmentally friendly material and materials which have longer lifetime (Sautma et al.,2021).

Green supply chain management is a new concept which started guiding the supply chain flow recently. Thus, co-friendly materials will help to reduce the ecosystem damaging waste generation and can maintain a sustainable flow of materials. Restaurants can depend on purchasing strategy to build collaborations with suppliers in providing eco labeled products and to meet the requirements based on government regulations (Tarigan et al.,2020). Eco labeled products will ensure ecological safety and sustainability. The development of service industry is highly dependent on the ability of suppliers to provide raw materials as needed. The company tends to build collaboration between supplier and customers to increase the supply chain flow. This help to gain competitive advantage for the firm (Basana et al.,2022) The services industry should ensure the coordination of internal and external factors for implementing supply chain in a practical aspect. Supply chain flow must be based on the efficient planning and forecasting so that a cost-effective supply chain can be maintained. (Phan et al.,2019).

Sustainable growth of hotels involves management, suppliers, employees, customers, local government, and stakeholders to get responsible for getting Eco certified. (Prud'homme and Raymond, 2016). Green supply chain activities can be ensured in hotels in collaboration with suppliers and customers to reduce the environmental impact. If the supplier starts supplying eco friendly products, it will gradually reduce the crucial impacts upon environment. (Nguyen et al.,2020). Supply chain integration can have an impact upon business performance with the effect of supply chain resilience and flexibility, but it doesn't have the impact upon innovation system. (Siagian et al.,2021). Green hotel idea can be implemented to avoid food wastage. In the supply chain flow each department is advised to measure number of components required. Accurate calculation is required to buy the raw materials in right quantity to avoid over spilling of stock and wastage. (Abdou et al.,2020)

From the relevant review of literature it's very clear regarding the impact of supply chain management on firm's sustainability. Upstream supply chain management need to be effectively planned and organized to to bring up more cost effectiveness and efficiency. This will gradually improve the firm's sustainability and profitability. Planned upstream supply chain management will reduce stock irregularities and waste

### **3. Methods and Data Collection**

Case study method is followed to identify the upstream supply chain management of the startup restaurant Foodie Panda. Direct observation is done to evaluate the upstream supply chain flow. Based on the observation SWOT analysis is done. A graphical representation and correlation study of supplier timing, food preparation timing on orders missed is analyzed to evaluate about the importance of on timely raw material supply.

The current study is predominantly based on primary data which is collected by direct examination and expert opinion. This is a descriptive cum analytical type of study and exploratory as far as that firm is concerned. Secondary data is collected from published and unpublished research report, journals, E magazines, E reports, published by various agencies, newspapers, internet etc.

The study aims to explore the upstream supply chain practice of a startup restaurant. It a short span study limited to one restaurant. All the findings and suggestions are purely useful for that restaurant, but other service areas can use this for crosschecking

### **4. Results and Discussion**

#### **4.1 Study of Upstream Supply Chain of Foodie Panda**

Foodie Panda is a new restaurant which started its operation by mid of January 2022. It's started by a new entrepreneur named Anto Augustin. Who is doing his business first time in the restaurant sector. The upstream supply chain is studied by direct observation. The main raw material needed for this restaurant include both perishable and non-perishable items. Here is the list of items and its source (Table 1).

Table 1. Raw material and its Source of Foodie Panda

<b>Raw materials</b>	<b>Source</b>	<b>Nature</b>	<b>Frequency of Purchase</b>
Chicken	Nearby Shop at Wholesale rate	Perishable	Daily
Milk Products	Nearby Shop at Wholesale rate	Perishable	Daily and some Weekly (Ice-creams)
Seasoning and Condiment items	Nearby Supermarket	Perishable	Twice Weekly
Vegetables and Fruits	Nearby Shop at Wholesale rate	Perishable	Daily
Gas	Wholesale Dealer	Non-Perishable	In Two Weeks
Charcoal	Wholesale Dealer	Non-Perishable	Twice Weekly
Drinking Water	Wholesale Dealer	Perishable	Weekly
Bread and wheat products	Wholesale Dealer	Perishable	Daily
Packaging items	Wholesale dealer	Non-Perishable	Weekly

#### **4.2 SWOT Analysis**

SWOT is a managerial tool used for strategic planning and strategic management which helps to identify strength, weakness, opportunities, and threat of a particular system. Based on the study managerial implications

can be given to improve and utilize the strength and opportunity areas, to minimize and restrict the weakness and threat areas.

Restaurant Supply chain SWOT Analysis will help operator to get a better understanding of their business and can identify area of improvements. Based on the study in Foodie Panda the analysis is given below.

Strength of the upstream supply chain in Foodie Panda

- Most of the raw materials are bought from nearby wholesale dealers so it's cost effective.
- Most of the perishable food items are replenished daily thus food quality is assured.
- Regular suppliers are maintained so that the supplier loyalty and good supplier relationship is maintained.
- No credit purchase is done. That is the cash of raw material purchase is given at the time of purchase itself so that no future debt to hold.
- Good freezer capacity is maintained to store the perishable food products in its good quality.
- Everyday check on quality and quantity of raw materials

Weakness of the upstream supply chain in Foodie Panda

- Product Wastage due to unsure quantity.
- Emergency replenishment due to poor stock management
- Issues of stock outs
- Power and invertors failures leads to loss of perishable raw materials.

Opportunities for the upstream supply chain management in Foodie Panda

- Several nearby shops are ready to give the product in wholesale rate so if a supplier is found guilty, they have several other options to choose.
- Most of the raw material suppliers (Chicken, Vegetables, Fruits, milk products etc.) is available in nearby locations (within 500 meters)

Threats for the upstream supply chain management in Foodie Panda

- Lockdowns and strikes.
- Price changes of raw material in the economy.
- Wrong quantity and quality delivery by suppliers.
- Suppliers missing the delivery of raw materials on pre booked date.

#### **4.2 Comparing plot of Supplier delay, Food preparation delay and missed orders.**

For upstream supply chain management on time supply of raw material is a great concern. As a restaurant supply chain is concerned most of the raw material are purchased daily basis and it's very important for the day-by-day operations. As discussed, earlier supply chain is a chain of process. When the supplier makes a delay, it will affect the whole process. It will cause food preparation delay and food order missing. The study is extended to analyze one week supplier delay time in minutes and the consequent impact upon food preparation delay and orders missed. Direct observation is done in Foodie Panda, based on the observation the supplier delay and food preparation delay are noted in minutes and missed orders is noted in numbers ((Table 2 and Figure 1). Table 2 showing supplier delay (in minutes), food preparation delay (in minutes) and missed orders (in numbers).

Table 2. Supplier delay (in minutes), food preparation delay (in minutes) and missed orders (in numbers)

Days in order	Supplier Delay	Food preparation delay	Orders missed
Day 1	10 minutes	5 minutes	0
Day 2	15 minutes	10 minutes	1
Day 3	60 minutes	55 minutes	7
Day 4	30 minutes	25 minutes	2
Day 5	20 minutes	15 minutes	1
Day 6	40 minutes	35 minutes	5
Day 7	60 minutes	55 minutes	6

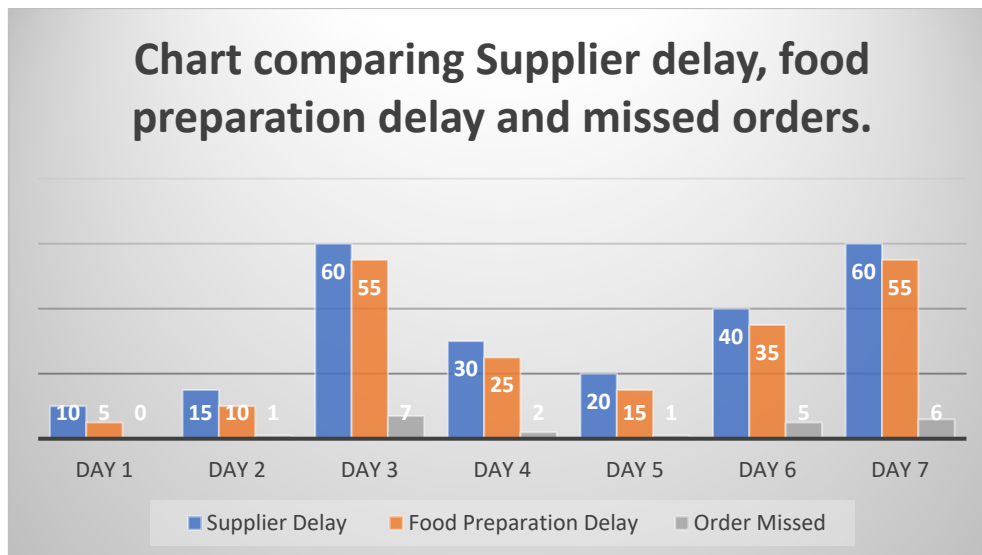


Figure 1. Chart comparing supplier delay (in minutes), food preparation delay (in minutes) and missed orders(in numbers)

**Karl Pearson's Correlation study** is done to find the relationship between Food preparation delay and missed orders. Also done the same analysis to find out the relationship between supplier delay time and missed orders (Table 3).

Table 3. Correlation analysis of food preparation delay, Supplier delay and Missed orders.

Correlation Items (Weekly Data)	Pearson Correlation Value
Food Preparation Delay and Missed Orders	0.976
Supplier Delay and Missed Orders	0.976

Correlation is significant at 0.01 level

Karl Pearson's Correlation analysis found that both Supplier delay and food preparation delay is highly correlated to the number of food orders missed. The correlation is so much significant as it is 0.976.

### 4.3 Proposed Improvements

Strengths are more based on our study so the firm can reach the growth stage in fast pace by utilizing its opportunities and by start taking actions to minimize weakness and threats (Table 4). Based on the direct study another one suggestion is to maintain more digital technical assistance in doing various activities. As the firm is in its growing phase it may have financial constraints. But once the firm reaches growth phase make more utilization of digital technology, it will keep you to maintain (Figure 2).

Table 4. Swot category

SWOT CATEGORY	ANALYSIS	SUGGESTIONS FOR IMPROVEMENT
Strengths	<ul style="list-style-type: none"> <li>• Cost Effective Purchase</li> <li>• Quality Assurance</li> <li>• Good Supplier Relationship</li> <li>• Good Purchasing Capacity</li> <li>• Good Storing features</li> <li>• Everyday check for quality and quantity maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Good implications which should be maintained and to be continued</li> </ul>
Weakness	<ul style="list-style-type: none"> <li>• Poor Forecasting</li> <li>• Poor stock management</li> <li>• Issues of Stock outs</li> <li>• Power and invertors failures</li> </ul>	<ul style="list-style-type: none"> <li>• Map the previous weeks trend and based on the trend graph make purchase forecasting</li> <li>• Give responsibility to a particular person for managing stock, make proper</li> </ul>

		<p>plan of replenishing before stock outs and avoid wastage by making overstock.</p> <ul style="list-style-type: none"> <li>• Maintain a proper store keeping.</li> <li>• Power failures are common in India, but we have to be sure about the battery backup of invertors. Make sure all the freezer equipment's are properly connected to the invertors.</li> </ul>
Opportunity	<ul style="list-style-type: none"> <li>• Several choices are available for supplier selection</li> <li>• Most of the raw material is available in nearby locations</li> </ul>	<ul style="list-style-type: none"> <li>• If the firm feels any loyalty missing from the part of suppliers, make a switch to next comfortable supplier.</li> <li>• Availability of raw material in nearby area is a boom. Make sufficient use of the market space.</li> </ul>
Threat	<ul style="list-style-type: none"> <li>• Lockdown and strikes</li> <li>• Price changes in economy</li> <li>• Supplier delays and mistakes</li> <li>• Delivery Issues</li> </ul>	<ul style="list-style-type: none"> <li>• Lockdown and strikes are quite common in the economy, try to have maintain the shop properly based on government guidelines at that point of time.</li> <li>• Maintain a good forecast on economic changes.</li> <li>• Avoid supplier mistakes and delivery issues by tracking supplier movement and with proper communications</li> </ul>

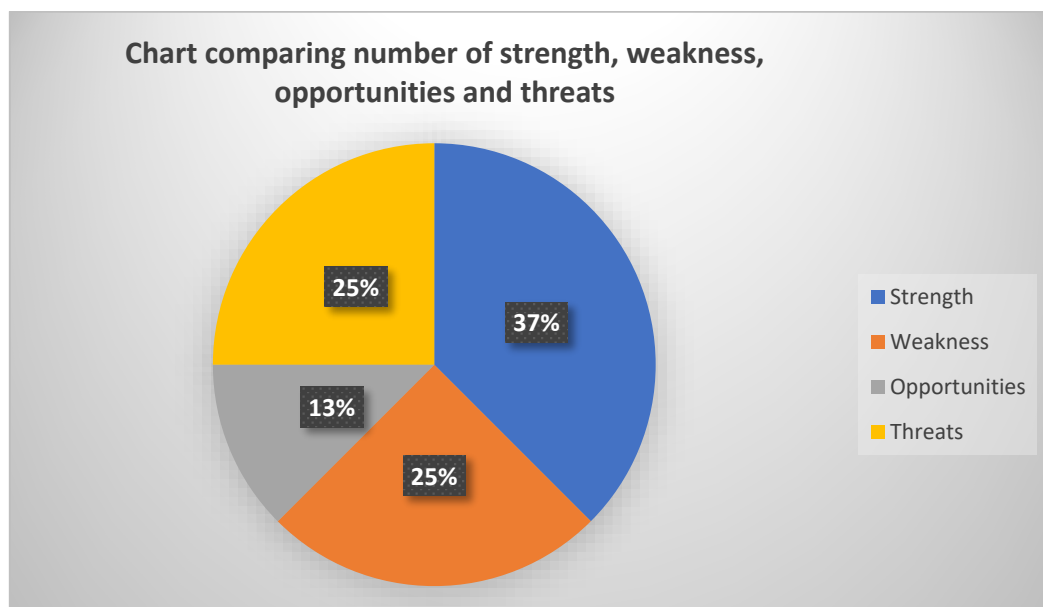


Figure 2. Chart comparing number of strength, weakness, opportunities and threats

The study also analyzed a one-week summary of supplier delay and its subsequent effect upon food preparation delay and missed orders and found that:

- For each supplier delay it will affect food preparation time.
- Up to 5 minutes delay is negligible but apart from that it will affect the whole food preparation process.
- Food preparation delay will cause order missing.
- Gradually supplier delay will affect the whole process and will lead to customer dissatisfaction.
- It can eventually lead to less cost effectiveness.

- Karl Pearson's Correlation analysis found that both Supplier delay and food preparation delay is highly correlated to the number of food orders missed. The correlation is so much significant as it is 0.976.

## **5. Conclusion**

For an emerging restaurant like Foodie Panda, it's very important to keep good records on upstream supply chain management. As far as new venture is concerned it will be having its own growth period to get established by their name so to maintain its profit level every part of the activity should be managed properly. This study gives an overall idea about the upstream supply chain activity of the concerned restaurant. Based on the Strength, Weakness, Opportunity, and Threat analysis the study identified the status of upstream supply chain management of the new restaurant Foodie Panda. Identified the point of improvement. If the restaurant maintained its strength by exploring the opportunities by reducing weakness and competing with threat, then in a long run the firm will be a success. Correlation Analysis and graphical representation is done based on supplier timing, Food preparation timing and missed orders. We identified that supplier should maintain proper time for delivering raw materials otherwise it will affect the whole process. The food preparation timing will be lagged, and restaurant will miss its valuable orders. We found that these factors are highly correlated. Proper Timing should be maintained for a cost-effective supply chain flow.

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