OMNI CHANNEL CONTROL TOWER

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ABSTRACT

As retailers scrambled in 2020 to build new omni channel capabilities, many new challenges surfaced. In the rush to handle all of those challenges, one thing that may have been missed was the ability to monitor the flow of orders, ensure that orders were being processed in a timely manner, and, where inevitable exceptions occurred, contact customers whose promised service timing would not be met. To handle this challenges it need to monitor, alert, and notify, this can be met via Control Tower functionality.

Keywords: Online Shopping, Customer Satisfaction, Information Availability, Time, Omnichannel.

I. INTRODUCTION

Omni-channel experience is a multi-channel approach to deal with marketing, selling, and serving clients in a way that makes an incorporated and firm client experience regardless of how or where a client connects, which in turn improves the customer satisfaction. In order to monitor the flow of orders a effective control tower solution is required. which allows a retailer to store all of the systemic events within the order lifecycle, compare the timing of those events to service timing promises to identify potential issues and execute the appropriate communications. supporting a "Purchase Anywhere, Ship Anywhere, Return Anywhere" Omnichannel satisfaction system has profoundly changed the plan of action and by and large shipment modes used in this way prompting a sizable expansion in general transportation arranging and execution challenges – and required expense control exercises.

Where the Control Tower solution is able to ingest all order picking details, it can also be expanded to provide fill rate management alerts. If an item at Store X is being skipped or shorted, the Control Tower solution can look at open orders and determine the number of open orders for the item that will also have fill rate issues. This can be used to trigger cycle counting, backroom replenishment, and/or updates to the available balance for the item at that store.

In addition to the monitoring functionality that is core to a Control Tower solution, the data necessary for the Control Tower functionality can allow an extension of the Control Tower functionality to provide:

- Customer check-in capabilities
- Arrivals dashboards and/or associate notifications
- Wait time calculations (time from check-in to order completion)
- Additional operational reporting.

II. PROBLEM STATEMENT

The primary problem statement in the current situation is monitoring the flow of orders to ensure that orders were being processed in a timely manner, and providing seamless customer experience. if an imperative exception occurs, contact customers in advance that their pickup order is not ready to deliver on time and provide them with necessary exception details.

III. RELATED WORK

Zhang et al., (2018) said that many retailers have tried to create an omni-channel retailing environment through channel integration. To satisfy consumer expectations for consistent, uniform, integrated services and experiences across multiple retailing channels, and investigates consumer responses in this new environment. Gallino & Moreno (2014) have done analysis on buy online and pick-up in store project implementation. He stated that this project will increase productivity of offline retailers but decreases online shopping. An effective omni channel control tower is very important to increase customer satisfaction.
Anderson (2009) said that two key factors to foster omnichannel behavior are "reducing the risk of losing the customer during customer journey by providing a unified and integrated services and customer experience and encouraging the customer to proceed in the customer journey with the company by providing seamless and intuitive transitions across channels in each touch-point to match customer preferences, needs, and behavior.

IV. METHODOLOGY

Omnichannel retail engages brands to arrive at purchasers at each touch point of the purchasing experience on the web and off to give a pertinent customer experience across all channels. Customers increasingly anticipate one-to-two-day fulfillment, therefore this "reinvention of logistics" to support Omnichannel fulfillment has resulted in an increase in the number of regional or local fulfillment nodes, which must be efficiently linked into the transportation network. As a result of the expansion in network nodes in response to ever increasing customer delivery demands, the percentage of network nodes has increased.

4.1. Steps involved in omni channel retailing

- Retailer provides the product information and the cost of the product.
- Customer uses this information to place the order.
- Order details are sent to inventory.
- Funds are transferred from the customer to the retailer.

4.2. Control tower solution

- A effective control tower solution requires the ability to
- Ingest order and event information from order capture, order management, and fulfillment execution systems.
- Build workflow definitions for each fulfillment type to be monitored.
- Build rules for exception monitoring based on key workflow events and either elapsed time or time before a defined due time.
- Monitor the data given the rule set.
- Execute communications to internal stakeholders and/or customers based on the defined rules and current order states.

4.3. Structure chart

The control flow between the system's modules is depicted in the structure chart. It lists all modules discovered thus far, as well as how they work together. It also discusses the sub-modules that have been identified. The structural diagram depicts the input and output of each module.

Figure 1: Structure chart

Figure 1 describes steps involved to generate the total wait time. Depending upon the timing of a system generated alert, communications can be sent to internal users to drive corrective measures and/or to customers to notify them of delays.
When a customer places the Order, Order details are sent to inventory to fulfill the customer request.

Order monitoring process takes place,

Depending upon the system generated alerts, wait time is calculated for each order.

Customers and internal users are notified about the order delays.

V. TECHNIQUES USED IN CONTROL TOWER SOLUTION

5.1. Machine Learning Algorithms

In addition to using only static rules and methods a control tower solution can be further enhanced by applying the machine learning algorithms to vary the rules and methods based on historical data and parameters such as Day of Week, Time of Day, special events and seasonality factors and comparisons of the current day’s progress to prior dates. That machine learning can be used to provide earlier alerts which can then be supplemented by user inputs. For example, Machine Learning may identify likely service issues based upon historic staffing levels but be corrected by a user that is aware that additional hours have been staffed for the day.

5.2. Graphical Representations

A Graphical representation allows the internal users to have a better understanding of processes and helps in analysing historical data. By dividing impacted areas into subgroups like impacted stores, impacted division, impacted orders etc., and presenting each sub group using graphical representation allows the analyser to do the analysis more efficiently and take the right decision in future.

VI. RESULT DISCUSSION

A Control tower for the omni channel monitors the order flow for each order. This data can be represented using charts which allows a clear understanding about the process.

**Figure 2:** Impacted Orders due to Modality

Figure 2 describes the reasons why orders are impacted and filters the order based on different reasons, grouping them together to provide a clear picture about modality.
Figure 3 describes the impacted areas by dividing impacted areas into subgroups like impacted stores, impacted division, and impacted orders. Based on this data and clear understanding about which area is impacted, an admin can take the right decision to improve the performance of that particular area.

<table>
<thead>
<tr>
<th>Order id</th>
<th>Store id</th>
<th>Division</th>
<th>Delivery Status</th>
<th>Exception</th>
<th>Generate Alert</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1x01</td>
<td>5</td>
<td>Staged</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>2</td>
<td>1x02</td>
<td>8</td>
<td>Picked</td>
<td>True</td>
<td>True</td>
</tr>
<tr>
<td>3</td>
<td>1x03</td>
<td>2</td>
<td>Shipped</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>4</td>
<td>1x10</td>
<td>5</td>
<td>Staged</td>
<td>False</td>
<td>False</td>
</tr>
</tbody>
</table>

Table 1 describes the monitoring data from the time order placed to order delivered, during this process each order is monitored individually and checks for the exception this exception can be anything due to which an order can't be delivered on time. if inevitable exceptions occurred, generate the alert and contact customers whose promised service timing would not be met.

VII. CONCLUSION

An effective control tower solution allows an omni channel retailer to increase the customer satisfaction, a proper order monitoring can be considered as a one of the key factor in omni channel retailing to increase the productivity. As customers are most valuable assets in every business, it is incredibly important to have a personal contact with customer and providing them a necessary notification ahead of time.

VIII. REFERENCES
