Business Review

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Purpose:

Provide holistic business review

Summary

TLDR: Dashmart makes 70% of the Cincinnati market, with highest in-stock rate (99.66%), lowest substitution rate (0.11%) & fastest D2R (2.91 minutes). The business is driven by early morning weekend orders occurring between 12am - 4am, Fri-Sun. Opportunity lies in increasing produce/diary market penetration & order packing efficiency.

Produce/Dairy
Dashmart does well in convenience items (snacks/drinks/pantry/candy) but poorly in produce/dairy compared to other grocers. Based on seasonality + types of products purchased consumers are likely utilizing Dashmart for 'fun food' versus their regular grocery shopping.

Should Dashmart want to cannibalize regular grocery shopping from competitors, we will need to:

- Validate produce/dairy offerings & price match competitors
- Offer targeted ads to users who primarily use other grocers for produce/diary

Packing Efficiency (Lates)
Dashmart has the fastest D2R & similar CLAT to other grocers but one of the highest rates of lates. While CLAT is the primary indicator if an order will be late this is followed by D2R. Since CLAT is the same, D2R is lower, we would expect lates to be on the lower end of the market.

We can infer there may be issues with packing orders timely so drivers are waiting at Dashmart driving lates. This could also explain why drivers are hesitant to accept Dashmart orders even though they are close by the facility

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Future Analysis

- Layering in **margin** to estimate profit for produce/dairy (instead of revenue)
- Additional **indicators for lates** (time to prepare product/time to get from store to customer)
    - Validate if dashers waiting at Dashmart for orders
    - Are certain product associated with lates have operational friction (hard to pack/access, alcohol needing ID, etc)
    - Is App suggesting too aggressive ETAs for distance from Dashmart facility to final destination?
    - Ensure proper staffing during peak hours/times

- Validate **drive time from Dashmart to final destination compared to other grocers** (if orders are further away it could be a deterrent for timely CLAT acceptances)
- **Optimize labor** to match high level of week/hour seasonality at Dashmart
- Add in **customer satisfaction of orders** to estimate business impact of late orders (how much do customers care if we are late)
- Explore drivers of cancellations
- Explore differences across dashers - are specific dashers causing lates/low customer surveys

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Analysis:

- Methodology
- KPIs
- Data Slices
    - Operations
        - Lates
        - Substitutions
    - Location
        - Performance review across 3 locations
    - Product
        - Top sellers; Fill Rates; Substitution Rates; Late Rates
    - Seasonality
        - Month-over-Month; Day of Week; Time of Day; Location

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Data Review

Methodology

We use descriptive statistics to make inferences on the business health, utilizing a mix of correlation matrices & various data slices to isolate drivers of KPIs

[Tabluea Data viz]
[Github Repo]

KPIs

Primary performance indicators

Late Orders	$\uparrow Late \downarrow Customer\ Satisfaction$
Cancellations	$\uparrow CLAT \uparrow Cancellation$
CLAT ; D2R	$\uparrow CLAT\{D2R\} \uparrow Late$

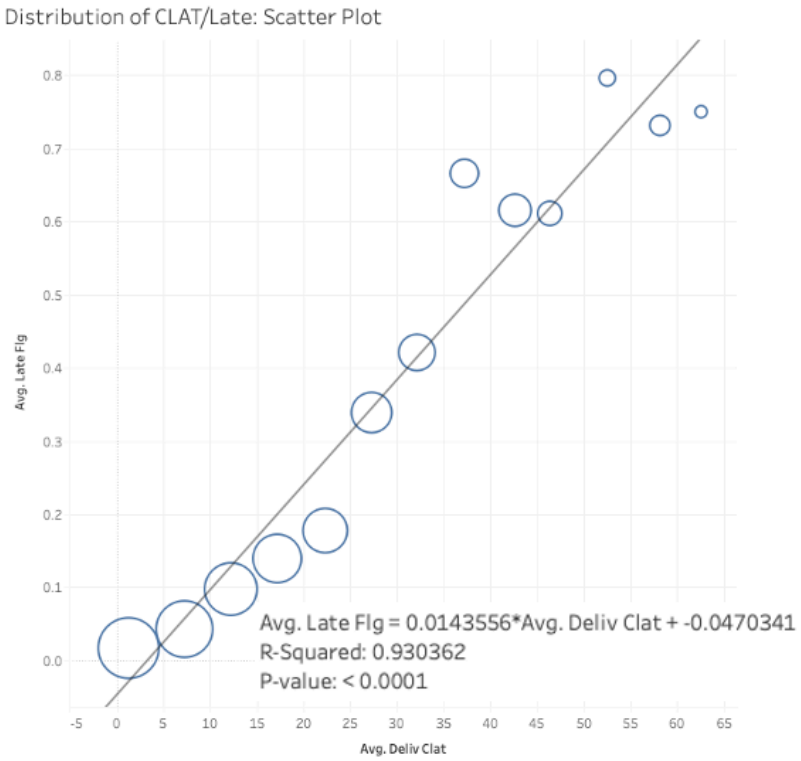
Sub Rates	$\uparrow Subs \uparrow Complaints$
Fill Rates	$\uparrow Fill\ Rates \downarrow Subs \downarrow Complaints$

Data Slices

Operations

Lates

- We find strong correlations between CLAT & an order being late, with each additional minute to accept an order increasing average late orders between 1-1.5% points (if removing outliers)
    - This analysis was redone using D2R with similar shape but looser connection (R2 = 0.42); each additional minute of D2R increasing average late orders by 5.5% points



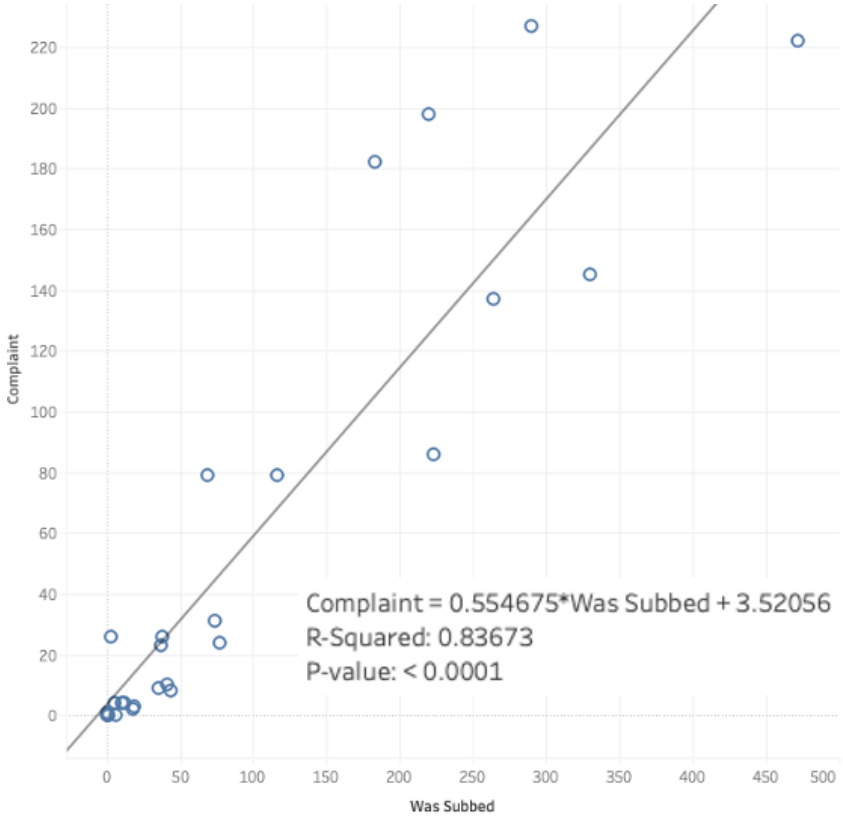
Subs

- We find orders with substitutions have a higher likelihood of having a complaint (missing/wrong items) from the customer
    - **Table 1)** Substitutions only make up 12.81% (1.6k/13k) of total orders, but 34% (71/208) of complaints have a substitute
    - **Table 2)** 10 substituted items are associated with an additional 5.5 complaints

Table 1)

	Substitution Flag		
Complaint Flag	0	1	Grand Total
0	11,272	1,605	12,877
1	137	71	208
Grand Total	11,409	1,676	13,085

Table 2)

- 

Location

- Dashmart makes up the majority (70%) of total market delivery, with highest in-stock rate (99.66%), lowest substitution rate (0.11%) & fastest D2R (2.91 minutes)
- Dashmart has the highest Late Rate (5.48%) which is driven by top categories averaging 5%
- Since Dashmart has the highest rates of Late but is also the fastest in terms of driving time (D2R/CLAT), Lates are likely driven by Dashmarts order prep time

Store	Delivery Count	Driver Count	Instock Rate	Avg. Deliv Clat	Avg. D2R	Cancel Rate	Sub Rate	Late Rate	Complaint Rate	Revenue	Avg Item Price
DashMart1	9,018	1,440	99.66%	4.57	2.91	0.99%	0.11%	5.48%	0.27%	$164,504	$4.79
Grocery1	2,736	486	74.98%	4.22	4.79	1.33%	10.25%	2.74%	0.48%	$91,364	$5.16
Grocery2	1,143	303	78.51%	5.26	8.13	1.21%	8.72%	5.42%	0.41%	$39,041	$5.18
Grocery3	188	133	79.24%	3.52	7.37	0.41%	7.81%	0.53%	0.00%	$6,129	$6.30
Grand Total	13,085	2,328	89.48%	4.54	4.18	1.10%	4.27%	4.83%	0.34%	$301,039	$4.97

Product

- Convenience items like drinks, snacks, pantry & candy make up 56% of DD business (Table 1)
- Slicing by Store type, DashMart sells mostly snacks with the majority of Produce & Dairy coming from other grocers (Table 2)
    - **Business Opportunity** - increase produce/dairy offerings to cannibalize other grocers share
    - 10% cannibalization of produce/dairy increases DashMart categories (Produce/Dairy) by 25% (551 units); **need to redo with margin to validate opportunity**
    - Alcohol has higher rates of Late (12%) than any other Dashmart product, it is possible there are ID frictions causing difficulty preparing orders quickly

Table 1)

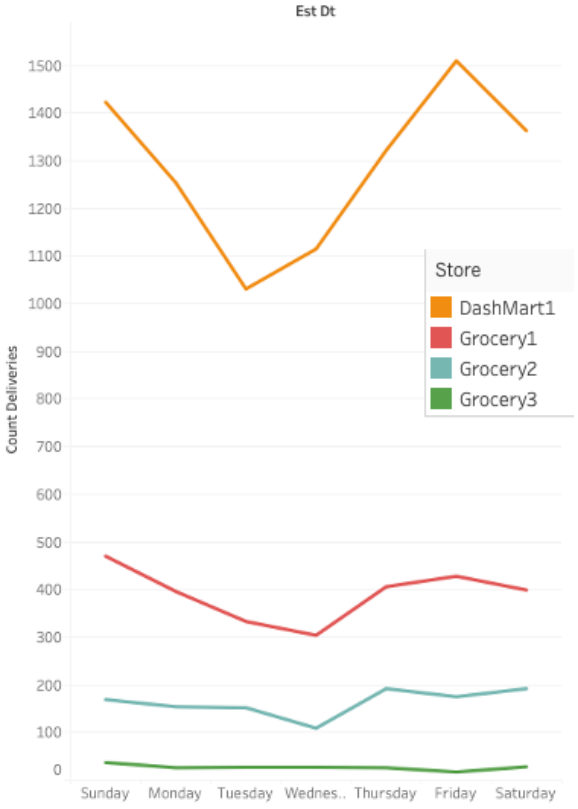
Item Category	Was Found	Found % (of Total) RT	Missing Rate	Sub Rate	Complaint Rate	Late Rate
Drinks	10,959	19.40%	4%	3%	1.1%	5%
Snacks	9,132	35.57%	4%	2%	1.1%	4%
Pantry	6,460	47.01%	10%	7%	1.3%	4%
Candy	4,833	55.56%	2%	1%	1.0%	4%
Dairy & Eggs	4,033	62.70%	9%	7%	1.9%	5%
Produce	3,636	69.14%	8%	5%	1.5%	5%
Frozen	3,162	74.74%	15%	10%	1.9%	4%
Ice Cream	2,917	79.90%	0%	0%	0.6%	4%
Household	2,051	83.53%	16%	11%	2.0%	6%
Bakery	1,818	86.75%	5%	4%	1.3%	5%
Meat & Fish	1,674	89.72%	10%	7%	2.9%	4%
Alcohol	1,458	92.30%	3%	3%	0.8%	11%
Personal Care	1,170	94.37%	10%	7%	1.2%	5%
Fresh Food	944	96.04%	8%	4%	1.6%	4%
Pet Care	742	97.35%	8%	6%	1.2%	4%
Medicine	455	98.16%	2%	1%	0.6%	4%
Baby & Child	266	98.63%	27%	13%	2.3%	5%
Health	263	99.10%	25%	17%	1.8%	7%
Baby	149	99.36%	1%	0%	0.7%	5%
Kitchen	109	99.55%	25%	17%	1.5%	4%
Storage & Cleaning	75	99.68%	36%	25%	2.9%	1%
Beauty	74	99.82%	27%	16%	3.2%	8%
Electronics	49	99.90%	27%	20%	6.3%	7%
Flowers	26	99.95%	38%	23%	0.0%	6%
Vitamins	15	99.98%	33%	7%	0.0%	0%
Gifts	12	100.00%	8%	0%	0.0%	0%
Multicultural	2	100.00%	0%	0%	0.0%	0%

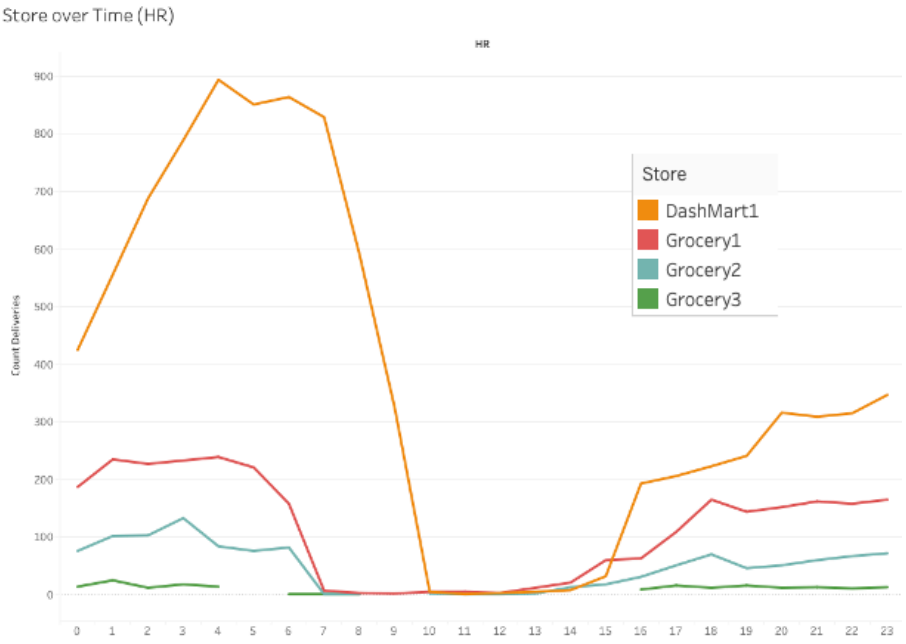
Table 2)

Store Types	Item Category	Was Found	Found % (of Total) (S)	Missing Rate	Sub Rate	Complaint Rate	Late Rate
DashMart1	Drinks	8,456	24.76%	0%	0%	0.8%	5%
	Snacks	6,893	20.19%	0%	0%	0.8%	5%
	Candy	4,343	12.72%	0%	0%	0.7%	5%
	Ice Cream	2,917	8.54%	0%	0%	0.6%	4%
	Pantry	2,232	6.54%	0%	0%	1.1%	5%
	Bakery	1,421	4.16%	0%	0%	0.9%	5%
	Dairy & Eggs	1,348	3.95%	1%	0%	1.6%	6%
	Alcohol	1,197	3.51%	0%	0%	0.4%	12%
	Frozen	1,084	3.17%	0%	0%	0.9%	6%
	Household	914	2.68%	0%	0%	1.1%	6%
	Produce	802	2.35%	1%	0%	1.6%	7%
	Fresh Food	636	1.86%	0%	0%	0.9%	4%
	Personal Care	589	1.72%	0%	0%	0.5%	5%
	Medicine	421	1.23%	0%	0%	0.7%	3%
	Meat & Fish	398	1.17%	1%	0%	2.7%	7%
	Pet Care	331	0.97%	1%	0%	0.6%	5%
	Baby	149	0.44%	1%	0%	0.7%	5%
	Gifts	12	0.04%	8%	0%	0.0%	0%
	Multicultural	2	0.01%	0%	0%	0.0%	0%
Other Grocer	Pantry	4,228	28.23%	15%	11%	1.4%	3%
	Produce	2,834	18.92%	10%	6%	1.5%	4%
	Dairy & Eggs	2,685	17.93%	13%	10%	2.0%	4%
	Drinks	2,503	16.71%	16%	11%	2.1%	4%
	Snacks	2,239	14.95%	15%	10%	2.1%	3%
	Frozen	2,078	13.88%	23%	16%	2.3%	3%
	Meat & Fish	1,276	8.52%	12%	9%	3.0%	3%
	Household	1,137	7.59%	30%	20%	2.6%	5%
	Personal Care	581	3.88%	19%	13%	1.9%	5%
	Candy	490	3.27%	22%	12%	2.8%	3%
	Pet Care	411	2.74%	13%	10%	1.7%	4%
	Bakery	397	2.65%	24%	18%	2.4%	4%

Seasonality

- Locations show **minimal seasonality Month-to-Month** but have high levels of seasonality at Day of Week & Hour level
- **Day of Week:** Fri-Sun are busiest days with declining volume M-TR, this is most visible in Dashmart but the pattern is similar for Grocer1
- **Hour:** Dashmart is most popular between afternoon - early morning, with peak deliveries occurring between 3-5 am, which may be driving the high orders of snacks/candy/convenience items





Data Notes

- Data is at Delivery UUID/ITEM_NAME
  - 5 duplicates found, we assume this is bad data & throw it away as apposed to representing quantity of items
  - 1 row had two instances of 1 UUID/ITEM NAME
    - `'e1e40ffa-1ca6-48f9-b764-339a1aab863d'`
    - Displayed 2 different prices for Brownie bites($5.2/10.4), we select the max item price in this case
- Assuming Cincinnati is OH & is in EST time
- Performed visual inspection of prices with some prices being very high ($100+) but associated with high-end items (electronics)

Data Prep

- Data viz was completed using Tableau Public
- Data was imported into Google BigQuery where basic data validation was done (finding duplicate UUID)
- Data was prepared at item level then again at order level for ease of use within Tableau