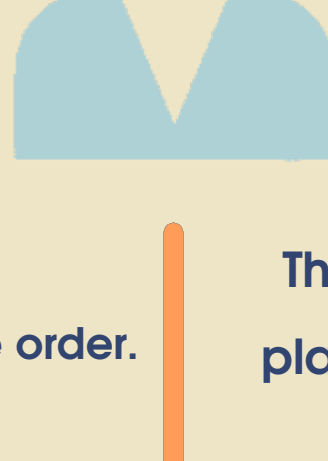


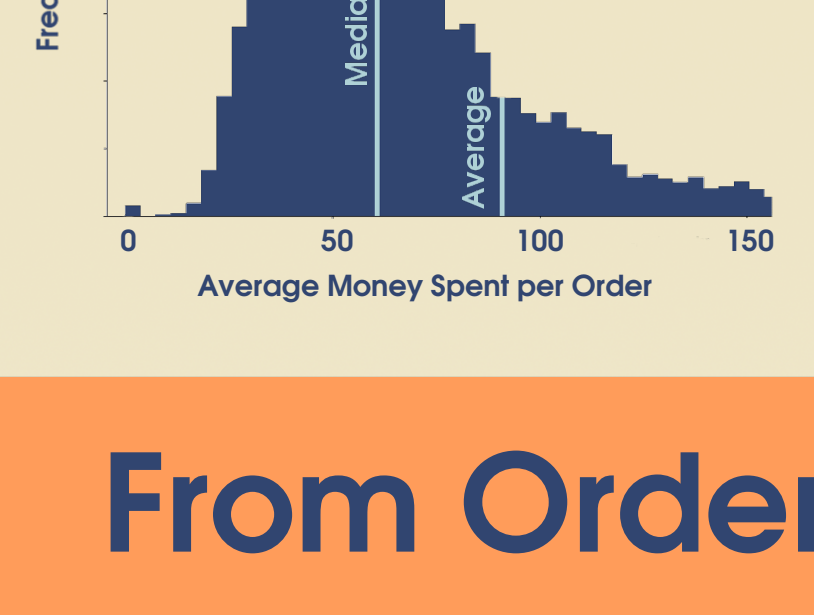
Does Speed Matter In E-Commerce?



The Average Customer



The average QVC customer places around **10 orders**.
The median is **3 orders** placed.
A few top customers have placed over 1000 orders each, skewing the average.

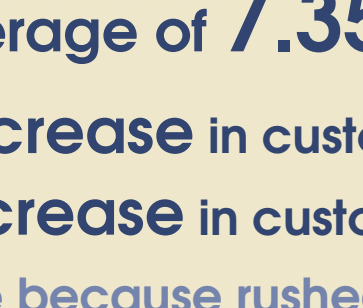


Average spending per order : **\$90**
Median spending per order : **\$60**

From Order to Delivery



On average, it takes **3.6 days** to process and ship an order after it is placed...



...and **3.75 days** in shipping until it arrives.

From order placed to delivery: average of **7.35 days**

An **increase** in processing time -an **increase** in customer orders. is associated with: -a **decrease** in customer returns.

This may seem counterintuitive but may be because rushed processing leads to order mistakes, damages, etc

Shipping time is **NOT** correlated with the number of orders a customer places, but it still matters.

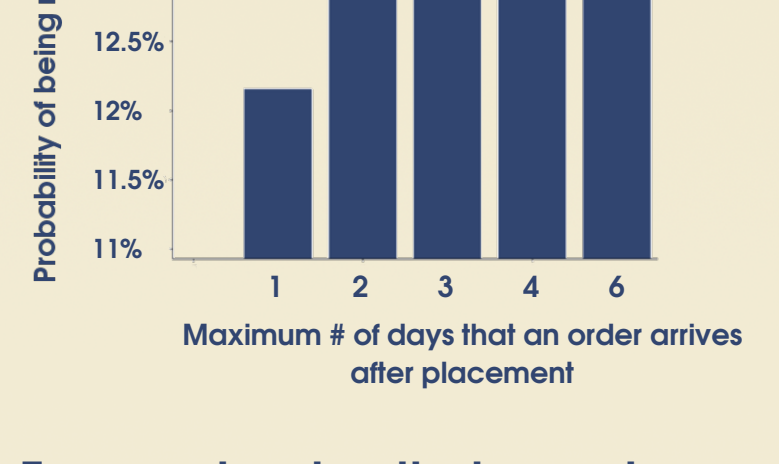
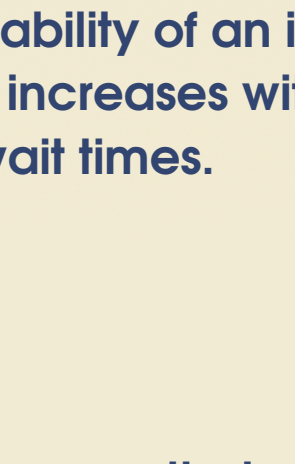
Consistency is Key



On average, the **final order** that a customer places takes **14% longer** than the previous order. (but still equal to the overall average)

This suggests that the customer **perception** of orders taking longer than usual is a factor.

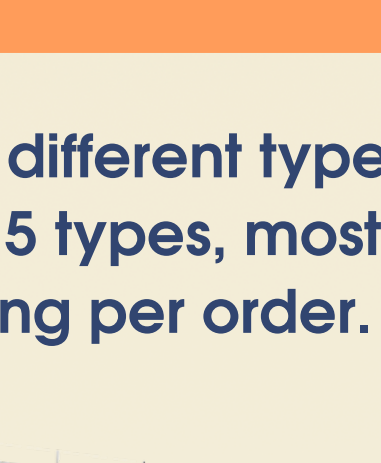
Returned items have a faster processing time and slightly longer shipping times.



The probability of an item being returned increases with longer overall wait times.

Every extra day that a customer waits on average, that customer will spend **\$1.13 less per order**.

Every extra day in **processing time** is associated with: **0.83 more orders**.



Net increase of **\$.93** per order for every day a customer waits.

Different Customer Types

Applying k-means clustering to identify different types of customers, we can see that there are 5 types, mostly differentiated by their average spending per order.



Only Type 4 customers show significant responses*. For them, **every extra day** is associated with an **extra \$0.03** in spending.

*Customers that spend between \$50 and \$100 per order. R-Squared = 0.18 p = 0.0079

Does Time Matter?

Shipping times and processing times both matter and should be addressed separately as they have different effects on reorders, customer spending, and return rates.

In order to optimize revenue, QVC would need to reduce shipping times while maintaining the appropriate processing times required for customer satisfaction.

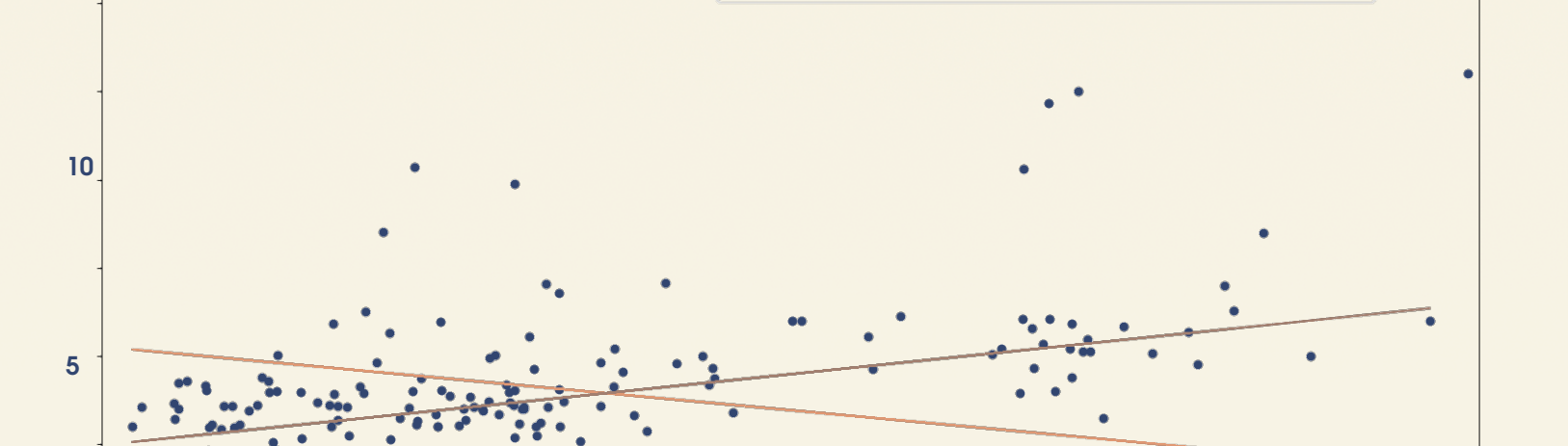
QVC should not sacrifice the quality, presentation, or packaging of a product in order to increase speed.

The Distribution System

Around 25% of warehouses have consistently higher processing times and do not follow normal patterns.

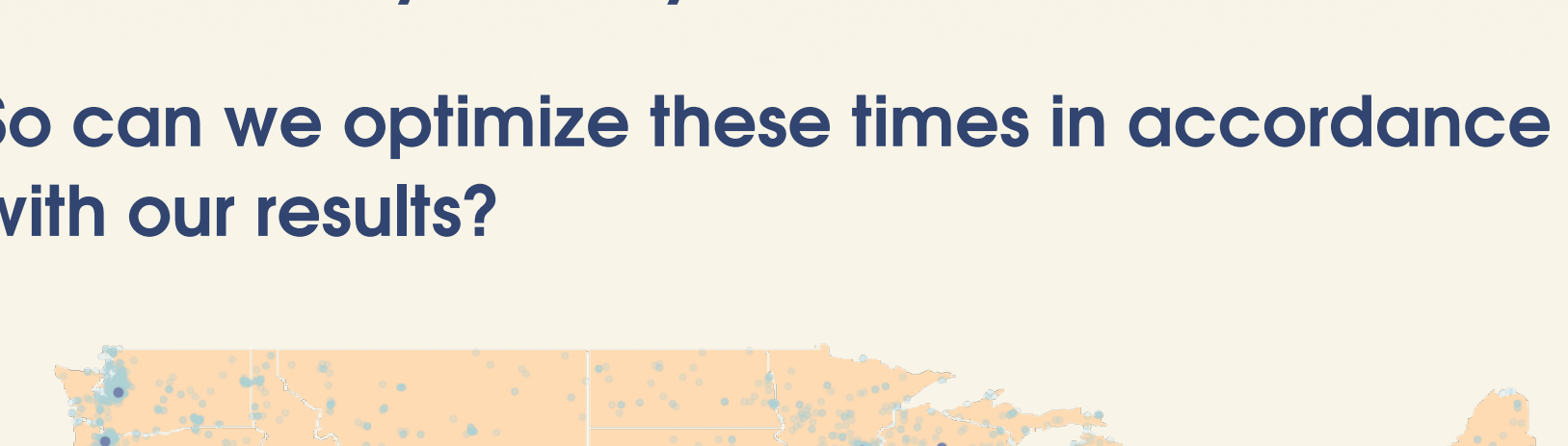


For the majority group of warehouses, clear patterns are observed:



For every 500 miles of distance to destination, shipping time increases by one day and processing time decreases by .75 days

So can we optimize these times in accordance with our results?



If all of the warehouses were moved to the center of the action (Southern Illinois) this will reduce the average distance to around **740 miles**.

A reduction of **90 miles** would correspond to a **.18 day** reduction in shipping times and the opportunity to increase processing times by **.135 days**.

This would correspond to **\$0.32** more spending per order and decreased return rates.

At approximately 9 million orders per year*, this is an increase of around **\$3 million!**

* Assuming dataset provided is comprehensive

Conclusion

Obviously, moving all warehouse is not feasible but these results should be taken into account for any future projects.

The effects of processing times and shipping times should be examined separately.



Since time is an important factor for customer satisfaction, QVC should definitely reduce these times wherever possible but be careful not to compromise the order processing quality. A decrease in processing time of an order is associated with a decrease in customer satisfaction.

The consistency in times between a placed order and delivery should also be taken into account when making any changes.