

GROUP FINAL PROJECT

# DataCo Global Supply Chain Analysis

By **Group M** : Achmad Aziz Fachrul Rozi | **Fitra Rachma Saphira** | **GM Surya Widya Sabda**





# Table of Content

## Background

Methodology & Data Overview

01

## Project Goals

Problem Statement, Objectives, & Scope

02

## Exploratory Data Analysis

Data Analysis & Visualization

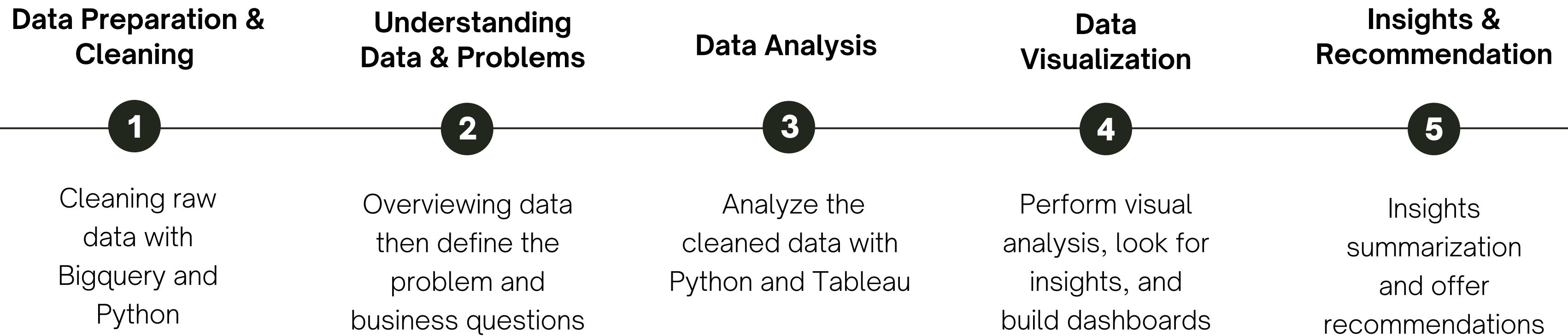
03

## Result

Recommendation

04

# Methodology



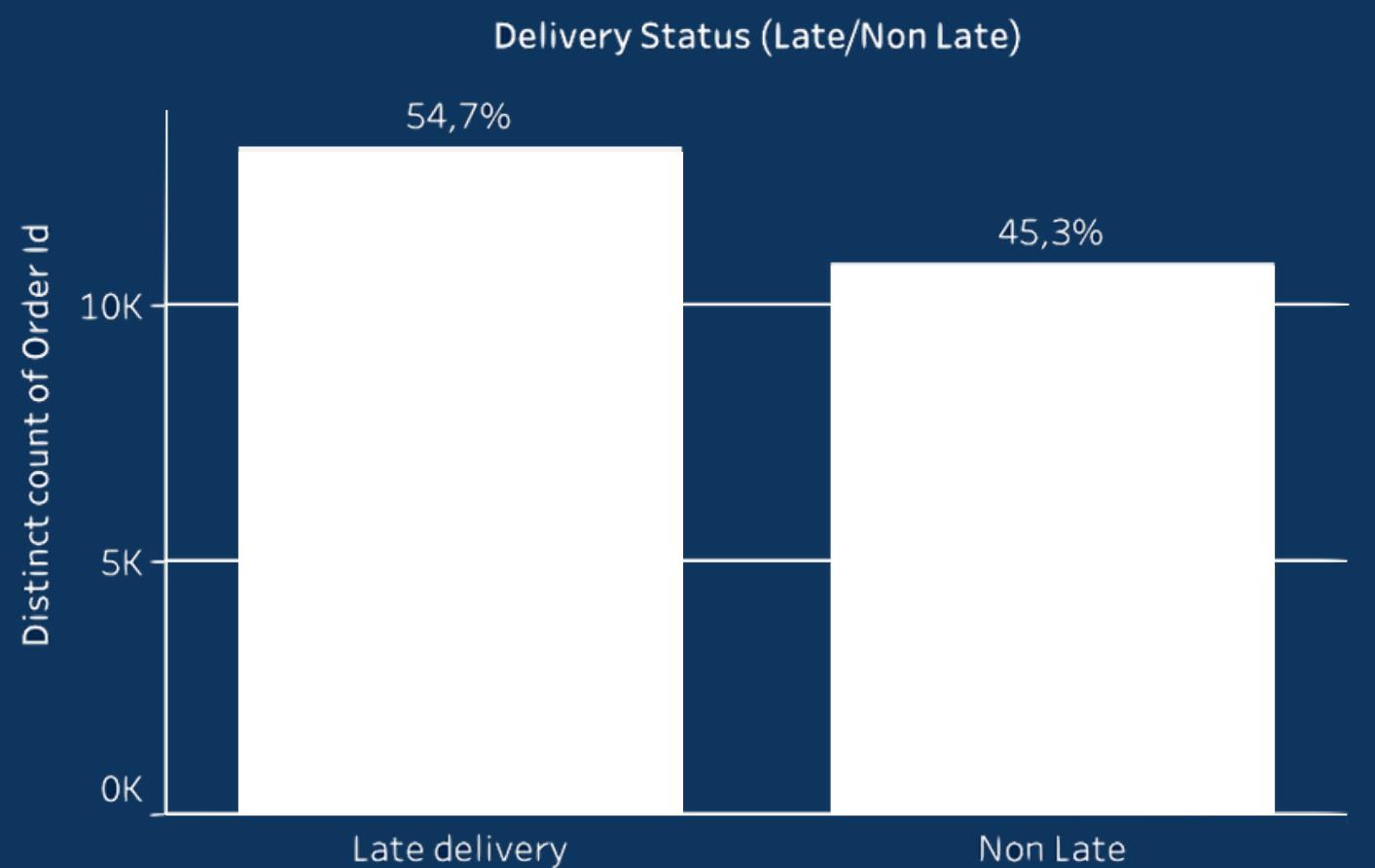
# Data Overview

The dataset belongs to an international supply chain named DataCo. It contains records of their **products sold, financial details, shipping records, and customer information** such as sales, demographics, and transaction details.





# Problem



**54.7%**

In the last two years,  
more than half of the  
orders have  
encountered late  
delivery.



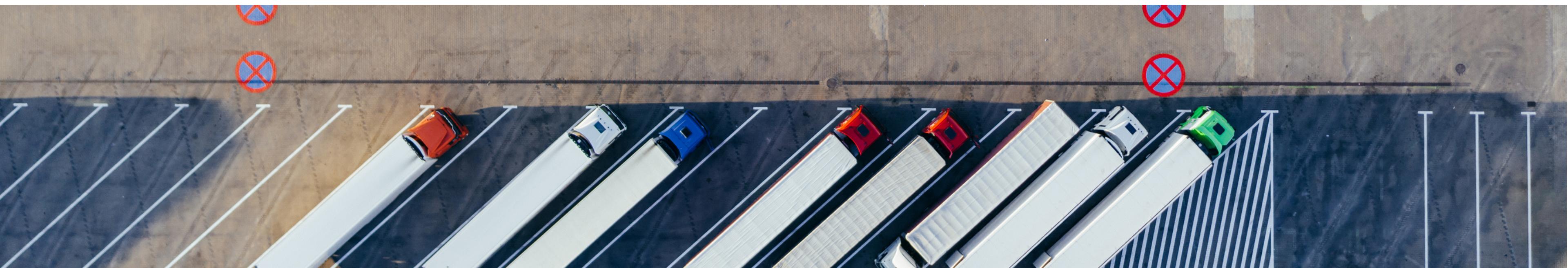
# Objective

## Objective

Minimize late delivery order by maximizing delivering strategy.

## Scope

Research is limited to e-commerce data for the last two year (2017-2018). All external factors are assumed to have no influence.





# Problems Overview

- Customer segment, order item quantity, and department store
- Shipment delay status & shipment days
- Average days of delay
- Late delivery ratio in each country and region
- Warehouse location
- Shipment mode

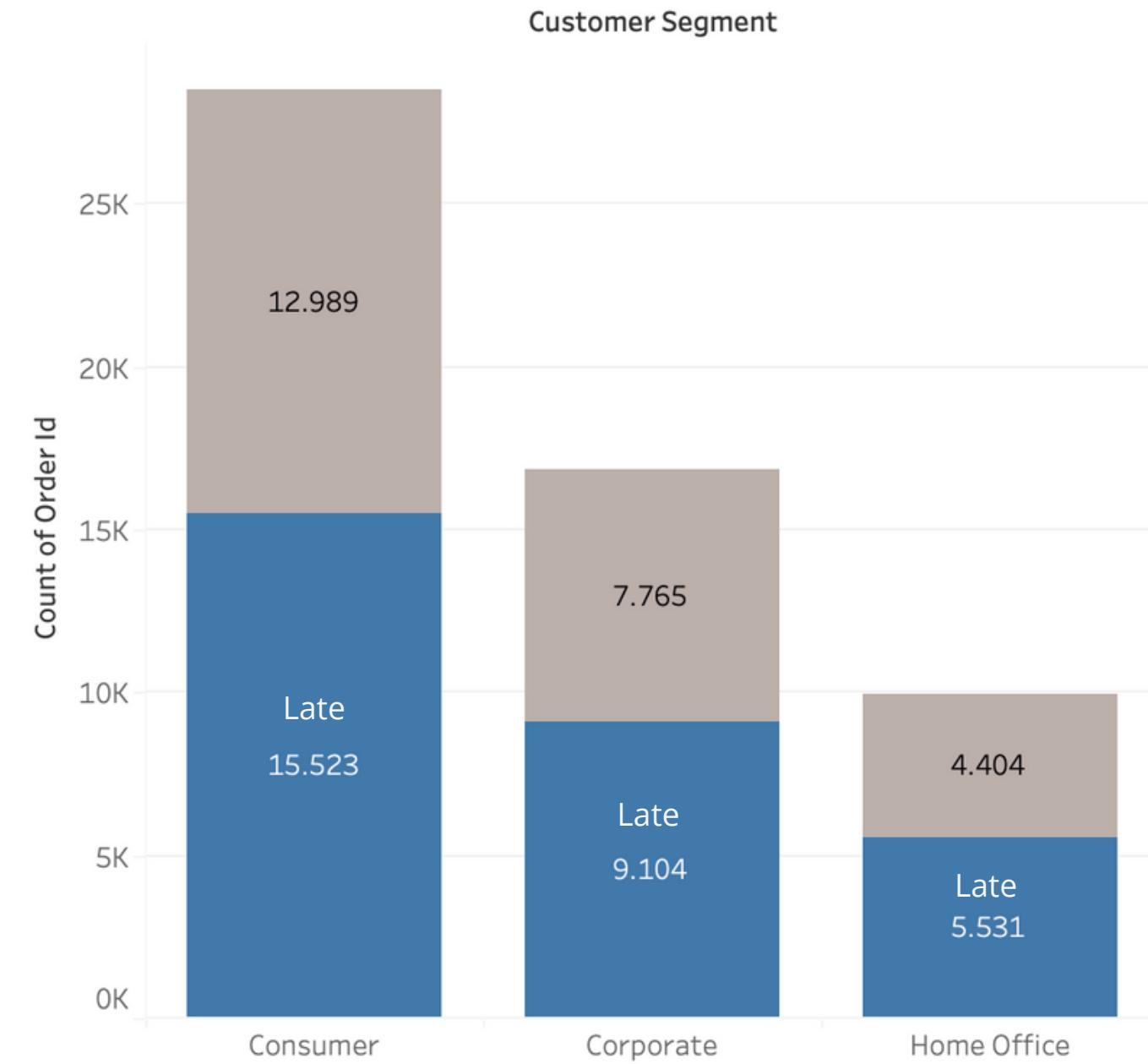
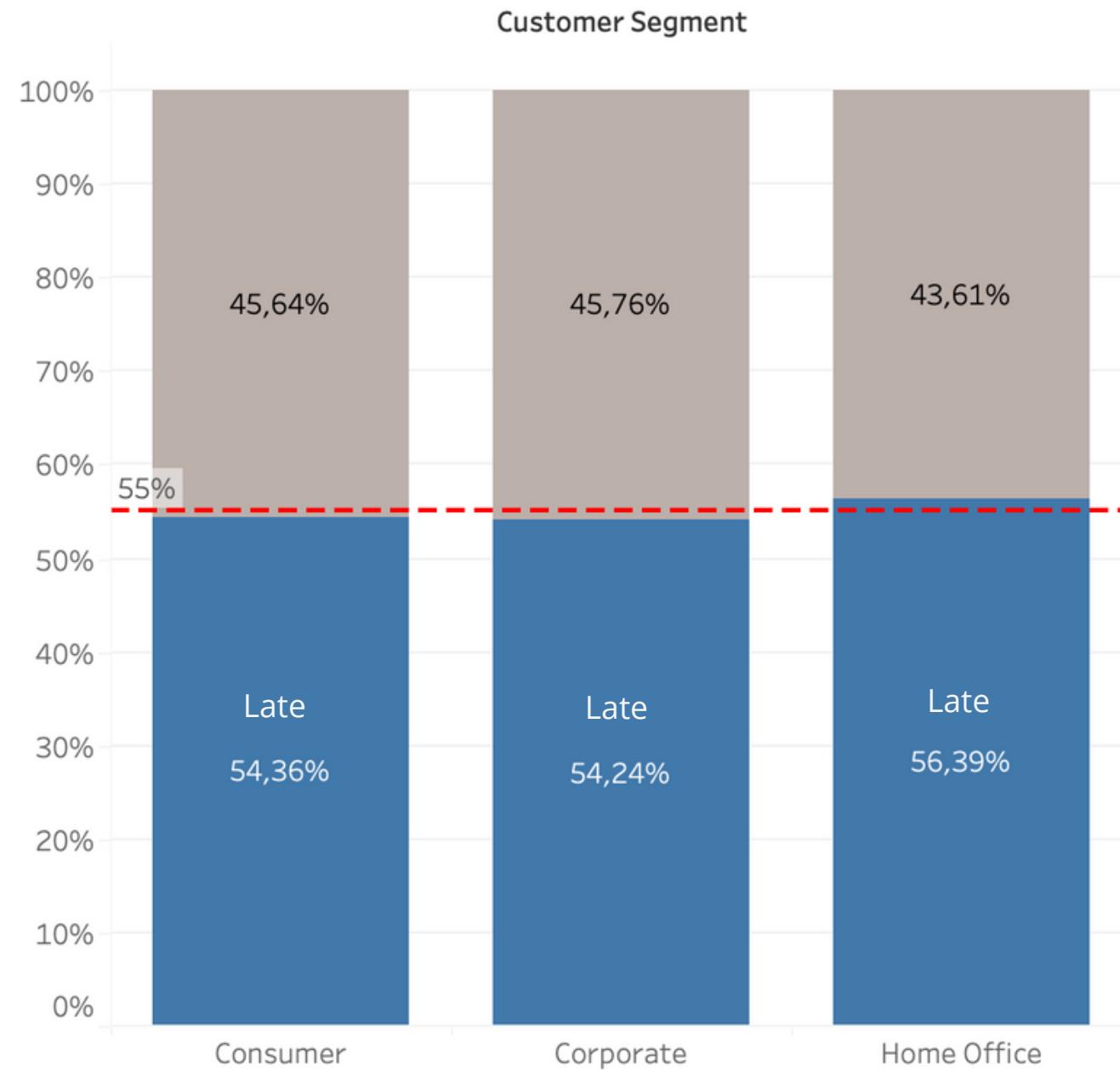


# Exploratory Data Analysis

Data Analysis & Visualization



# Customer Segment



## Summary

- Order tends to experience delays for all of the **customer segment**.

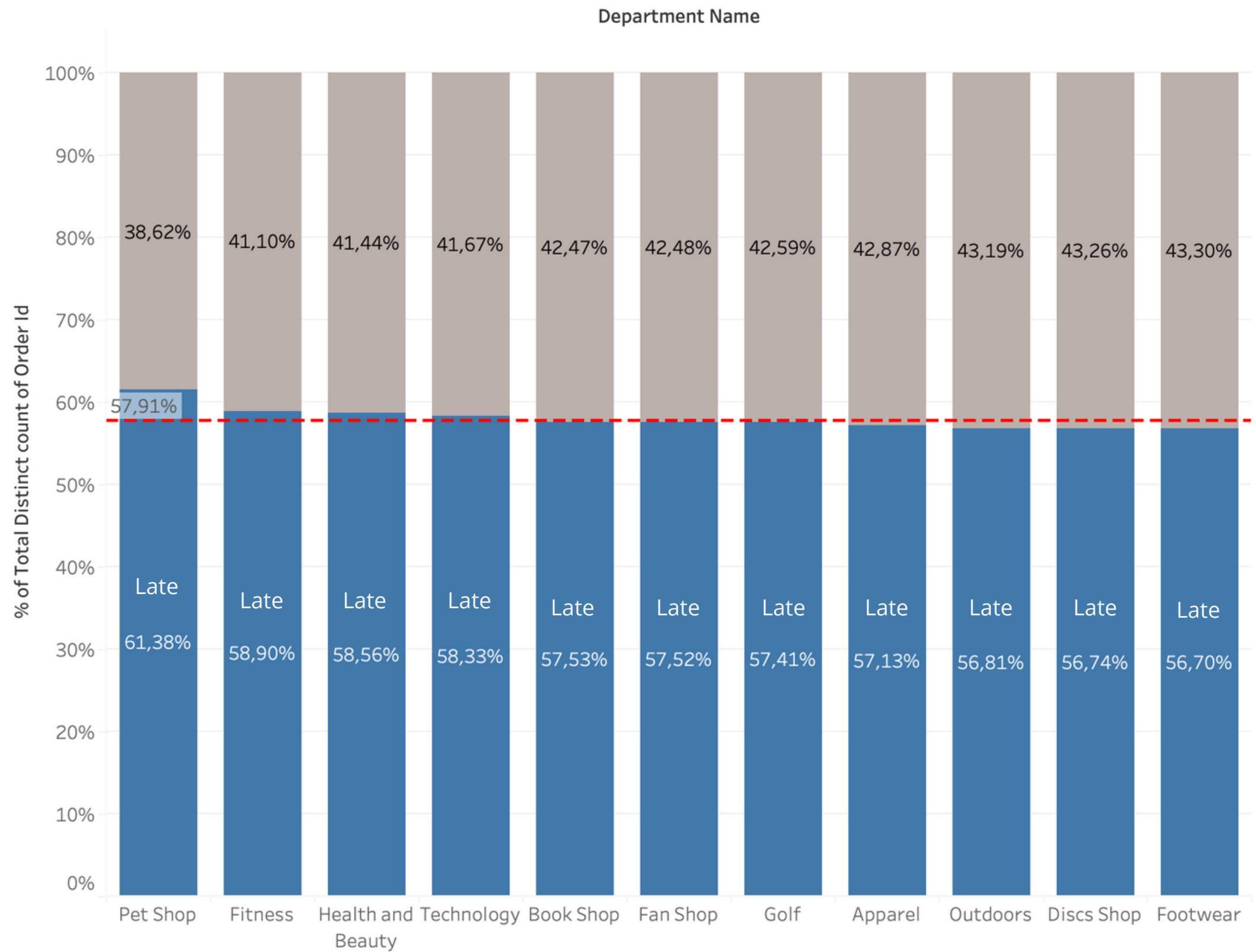
# Order Item Quantity



## Summary

- More than half of the order tends to experience delays regardless of the **number of items in the order.**

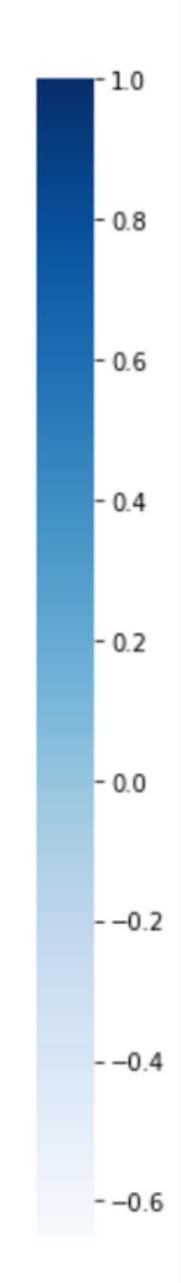
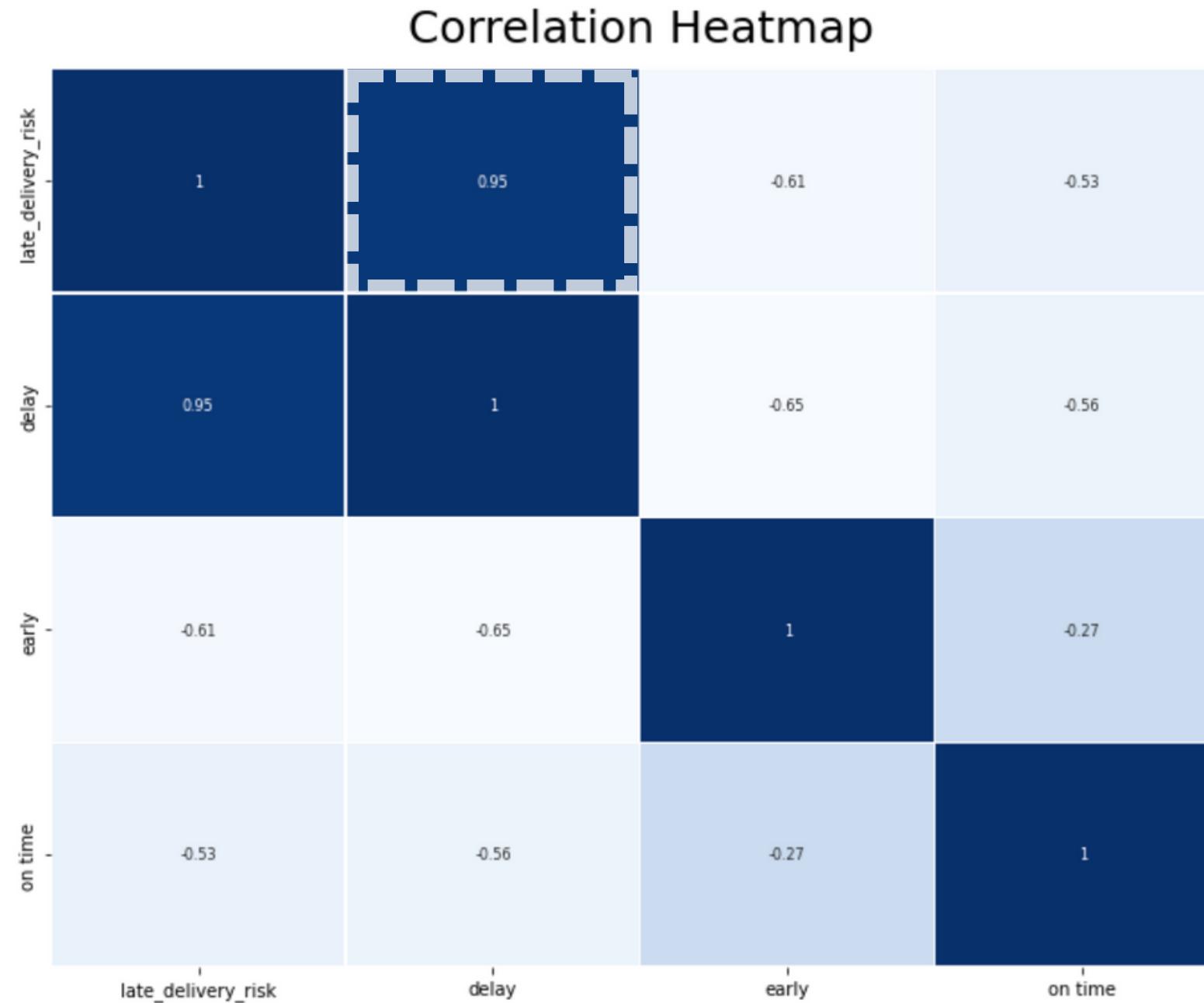
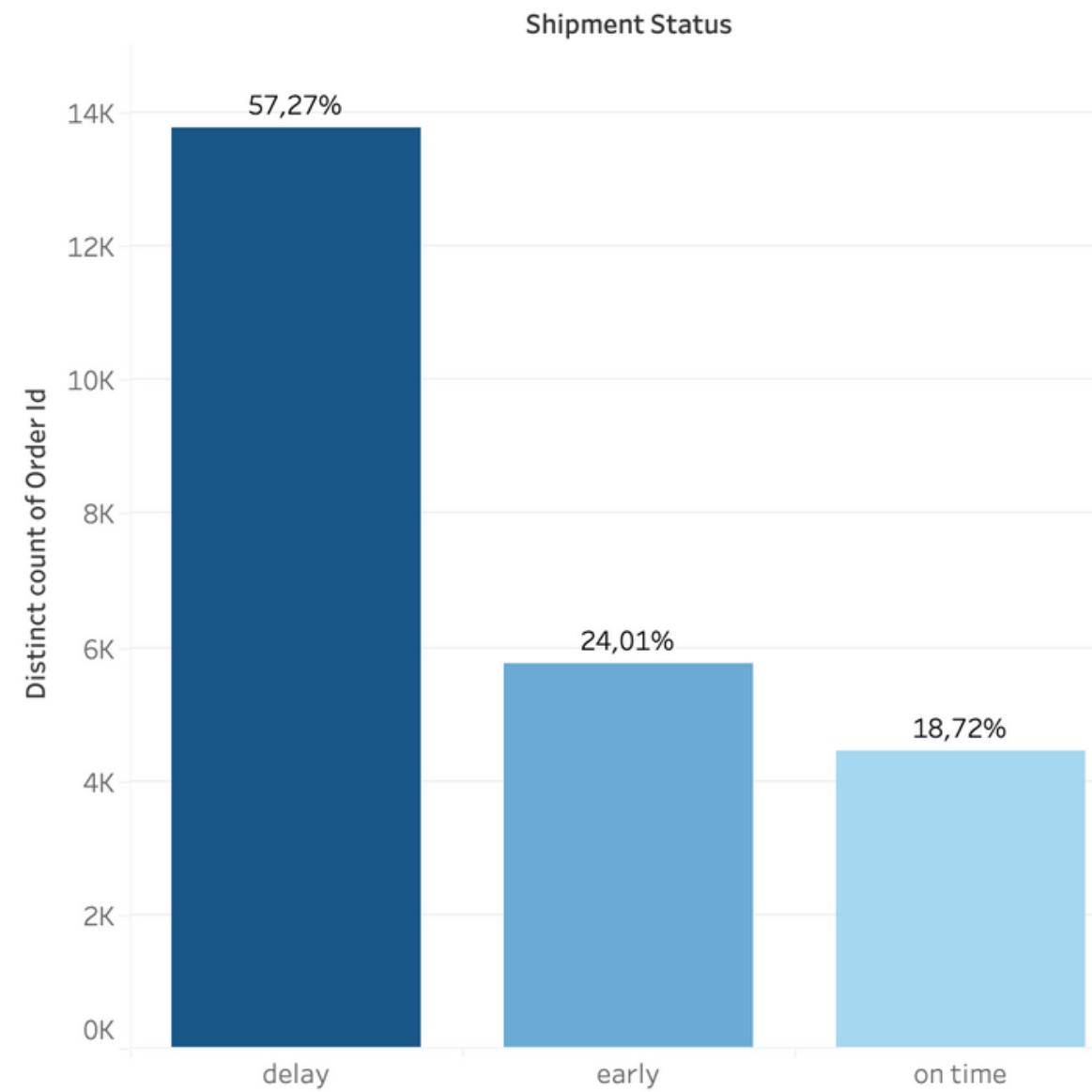
# Department Store



## Summary

- It tends to experience delays regardless of the **department store**, **Pet shop is the highest.**

# Shipment Delay Status



## Summary

- New column was created to tell if the order shipment was **delayed, on-time, or early** from scheduled time
- Delayed shipment have **strong positive correlation** with late delivery risk order

# Average Days of delayed shipment in each department store and product category



Department store

-1,66 Fitness	-1,62 Outdoors	-1,62 Discs Shop	-1,61 Fan Shop
-1,63 Technology			
-1,63 Golf	-1,60 Pet Shop	-1,53 Book Shop	-1,51 Health and Beauty
-1,62 Apparel	-1,58 Footwear		

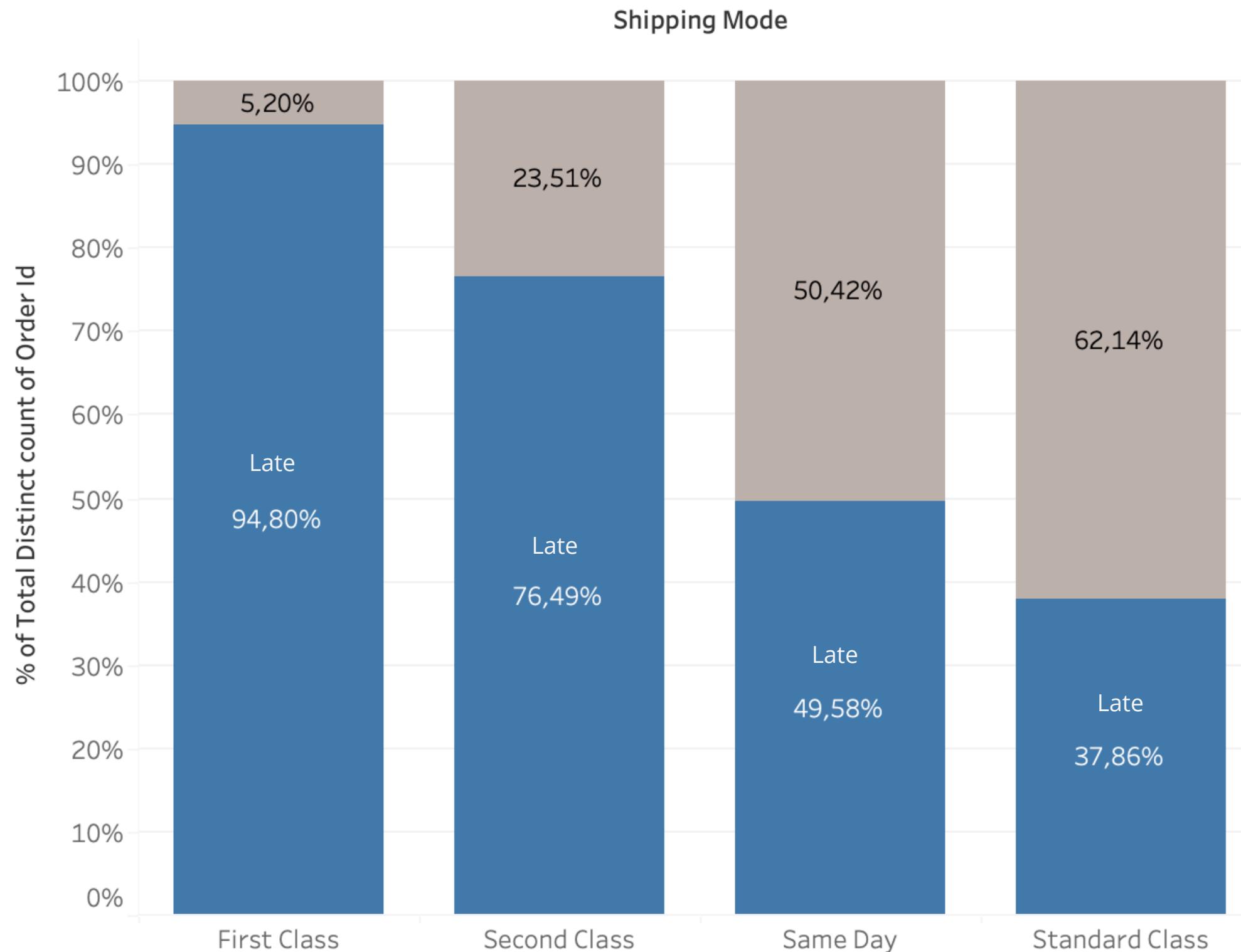
Product Category

-2,00 Tennis & Racquet	-1,70 Children's Clothing	-1,65 Baseball & Softball	-1,63	-1,63 Strength Training	-1,62 Fishing	-1,62 Crafts	-1,62 DVDs	-1,61
-1,87 Soccer	-1,69 Golf Balls	-1,64 Sporting Goods						
-1,79 As Seen on TV!	-1,69 Girls' Apparel	-1,64 Men's Footwear	-1,61 Golf Shoes	-1,58 Camping & Hiking	-1,58 Cardio	-1,57 Music	-1,57 Toys	-1,56 Men's Clothing
-1,75 Women's Golf Clubs	-1,69 Trade-In	-1,64 Garden	-1,60 Cleats	-1,56 Hunting & Shooting	-1,53 CDs	-1,52 Lacrosse	-1,52 Golf Apparel	
-1,73 Consumer Electronics	-1,68 Boxing & MMA	-1,63 Women's Apparel	-1,60 Pet Supplies	-1,56 Cameras				
-1,73 Basketball	-1,67 Video Games	-1,63 Kids' Golf Clubs	-1,60 Golf Gloves	-1,55 Golf Bags & Carts				
-1,70 Women's Clothing	-1,66 Computers	-1,63 Shop By Sport	-1,59 Water Sports	-1,53 Books				
					-1,48 Baby			-1,39 Hockey
						-1,46 Fitness Accessories		
							-1,50 Electronics	

Summary

- **Fitness store** have the longest average days of delayed shipment
- **Tennis & Racquet product** have the longest days of delayed shipment

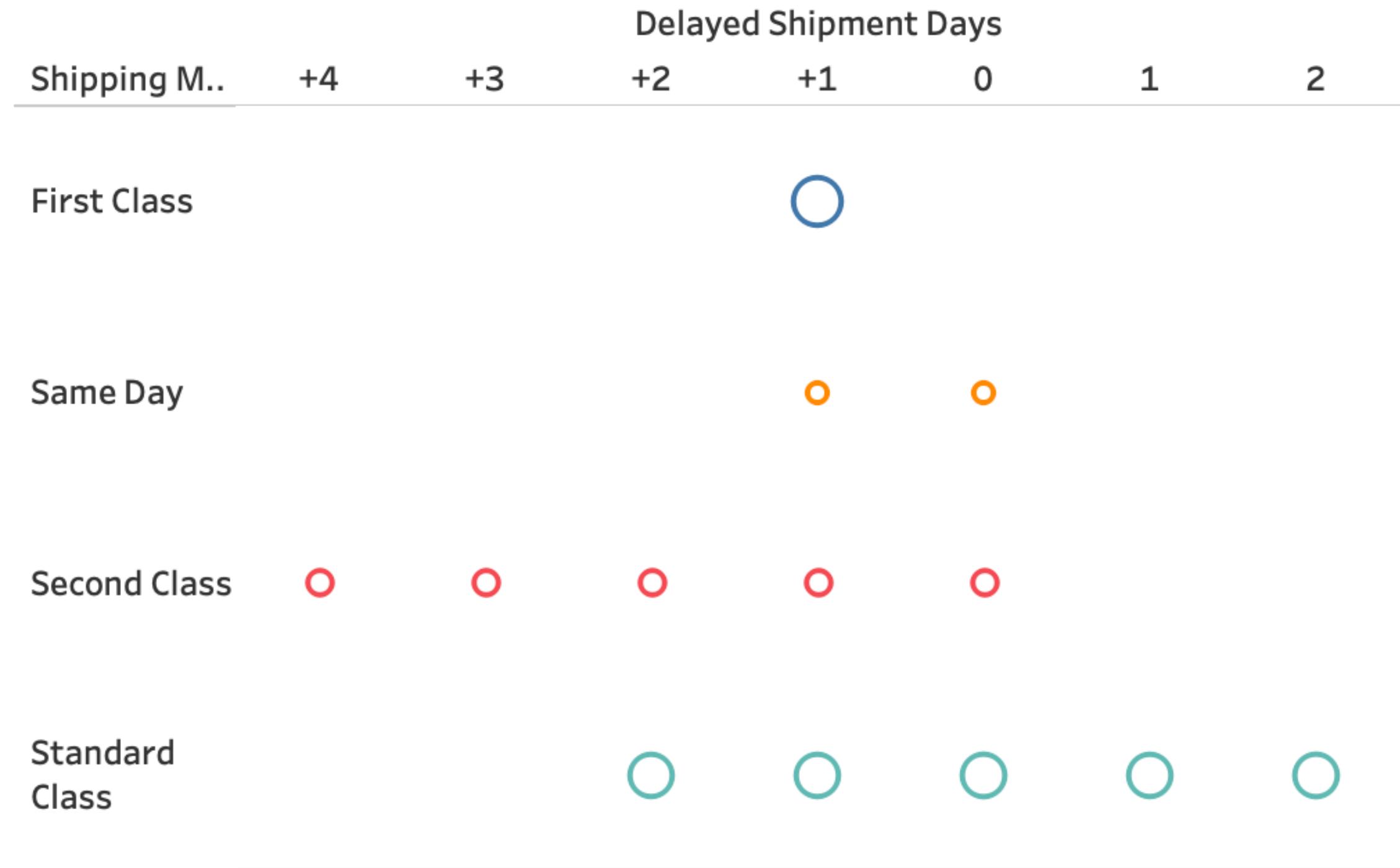
# Shipping Mode



## Summary

- **First Class** mode have the highest percentage of late delivery order, followed by **Second Class** mode.
- **Standard Class** mode have the least percentage which 37,86% of all order

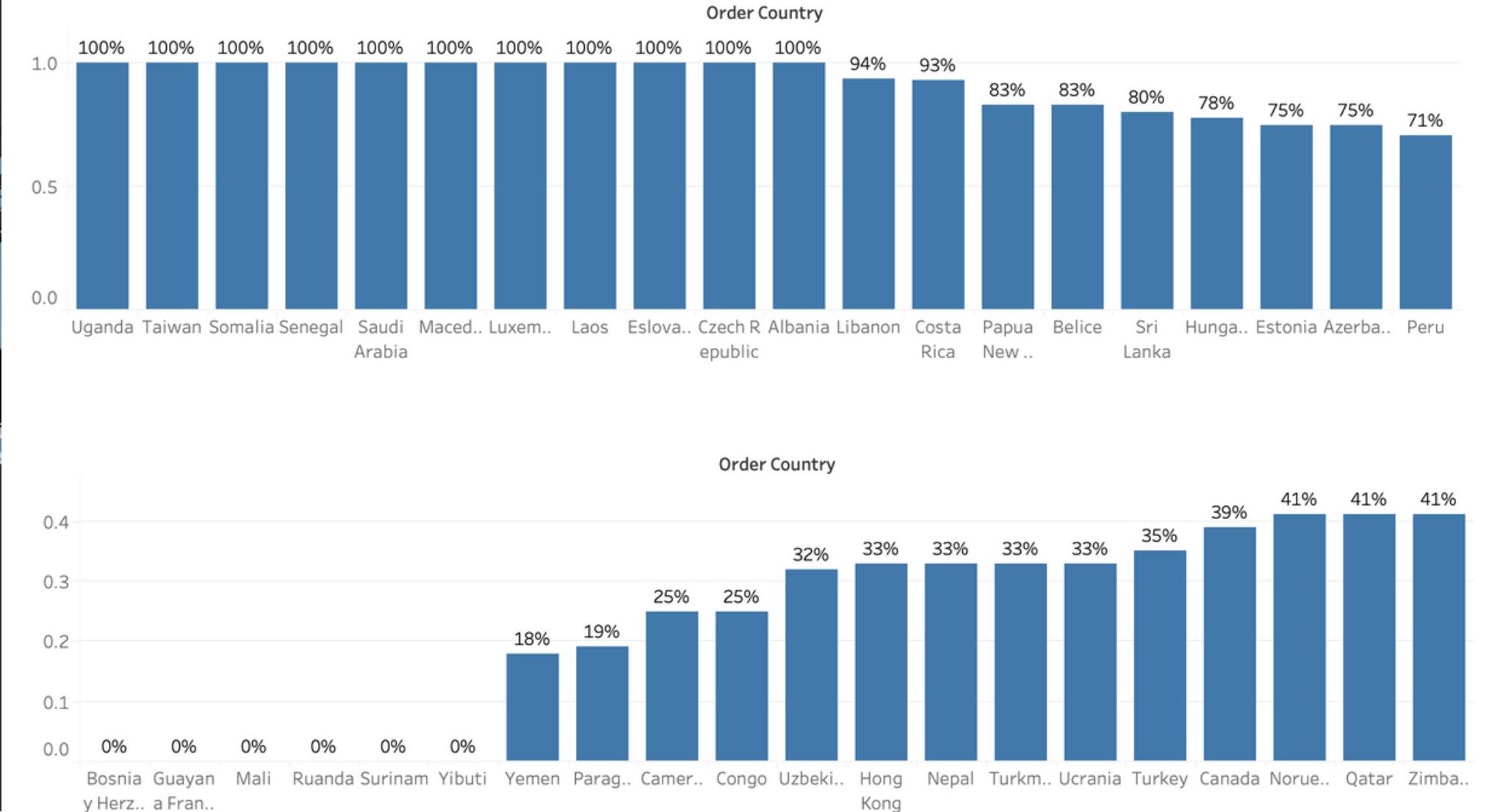
# Delayed Shipment Days



## Summary

- **First class** mode always one day late with the actual shipment
- **Same-day** mode could be one day late or on time shipment
- **Second class** could be 1-4 days late or on-time shipment
- **Standard Class** could be 1-2 days earlier, on time, and 1-2 days late.

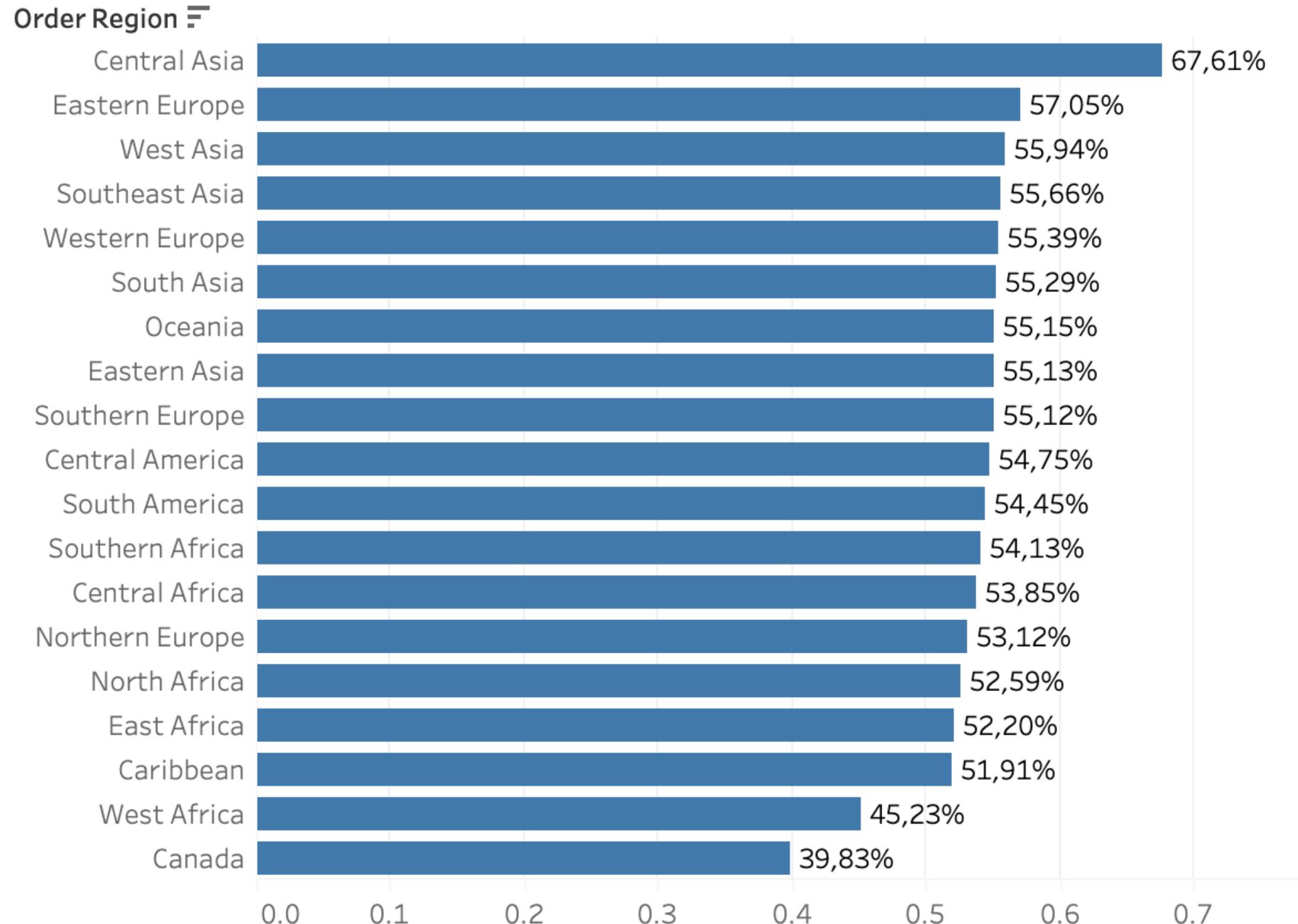
# Ratio of Late Delivery Risk Order in each Country



## Summary

- There is **a lot of countries** in Asia, Europe, and Afrika with high percentage of late delivery risk order

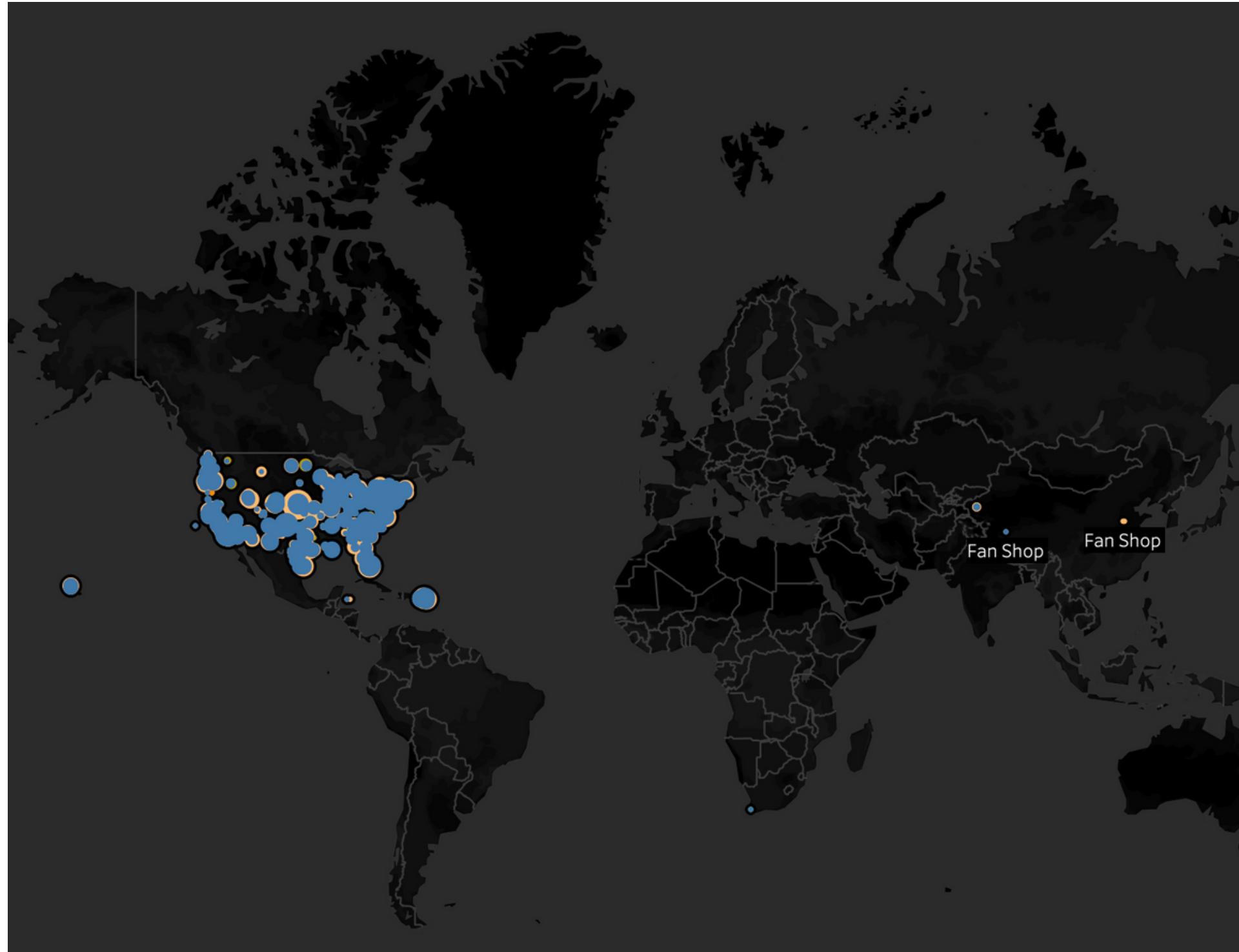
# Ratio of Late Delivery Risk order in each Region



## Summary

- **Central Asia** have the highest percentage of late delivery and **Canada** have the least percentage.

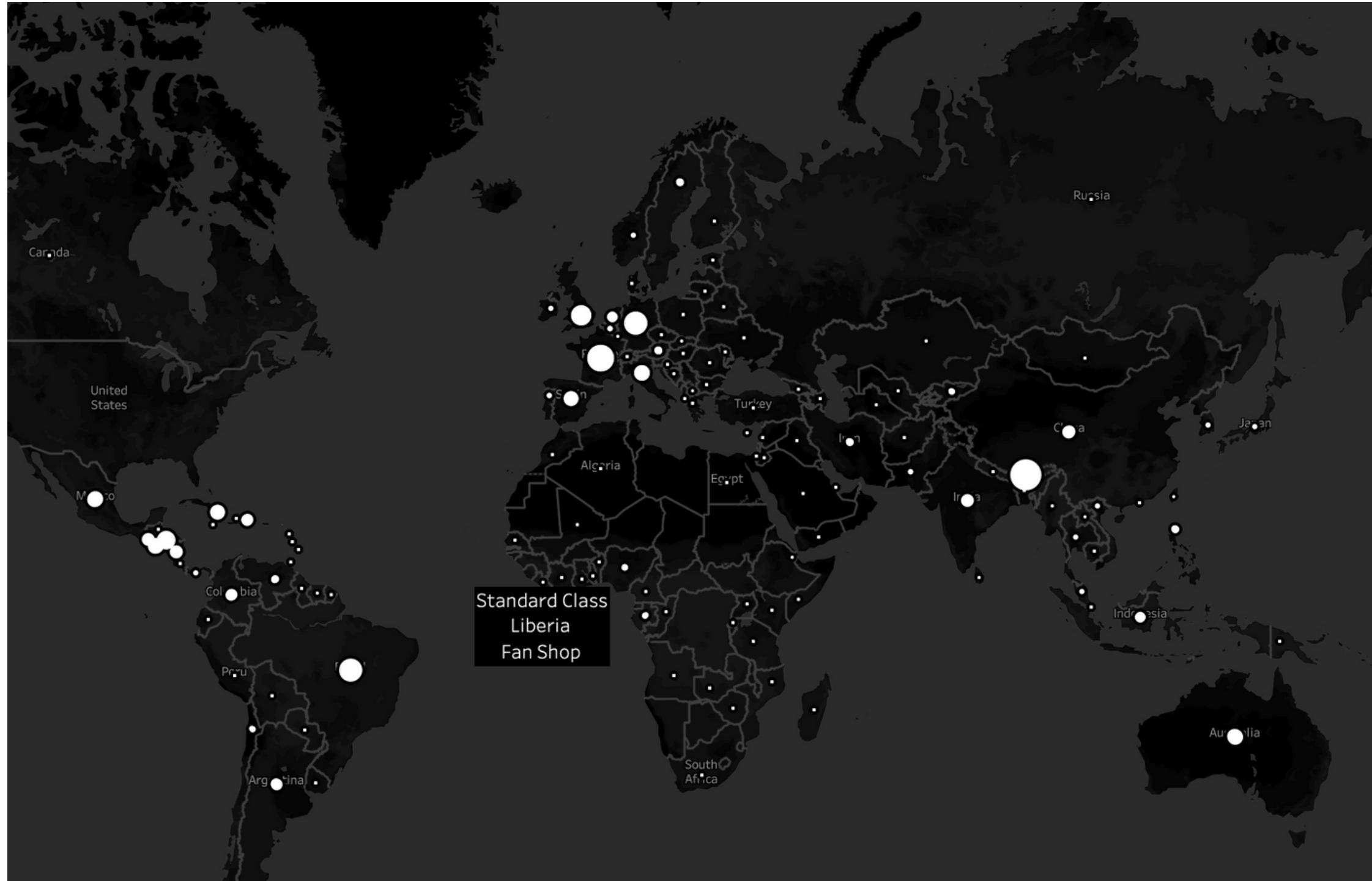
# Warehouse Location



## Summary

- **Most of the warehouse location are located in U.S, Hawaii, and Cuba.** Just a few of them in Asia and Europe.

# Order Region



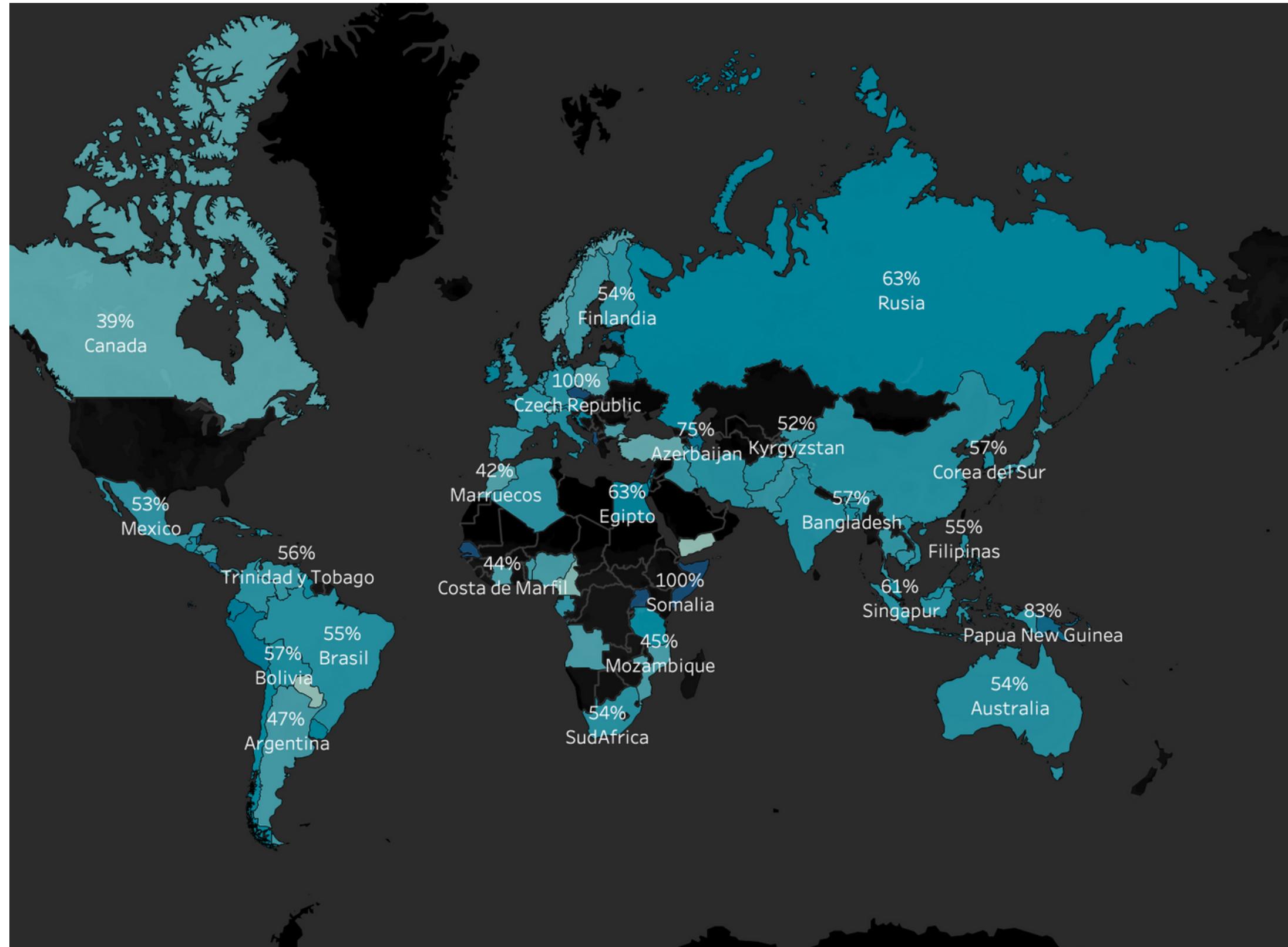
## Summary

- Most of order are come from Europe, Latin America, and Asia

# Shipping Mode



## First Class



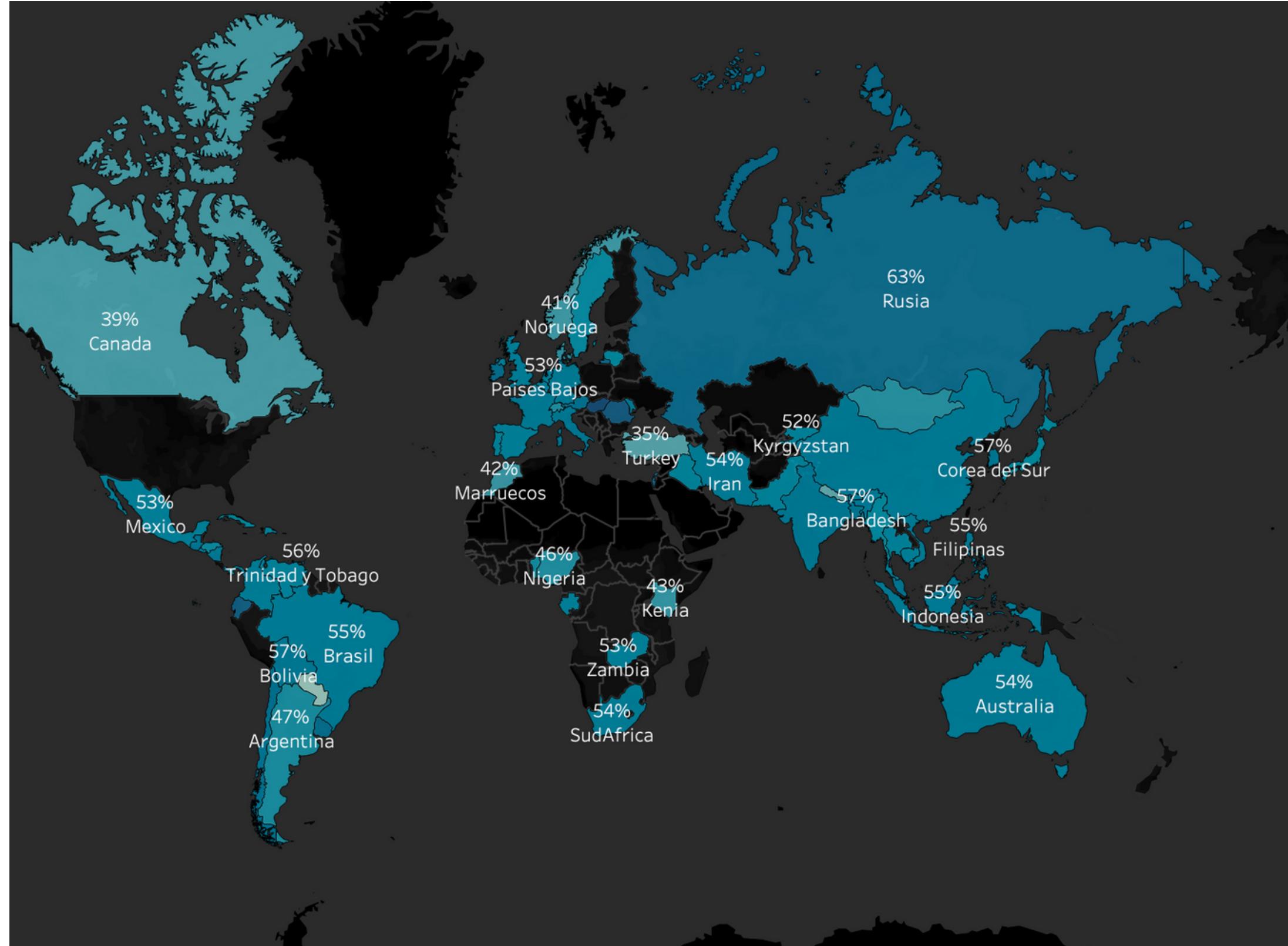
## Summary

- Percentage of late delivery using **First Class Shipping Mode**
- Most of late delivery order are occurred in **Europe, East Africa, Australia, Latin America, and Asia**

# Shipping Mode



Same Day



## Summary

- Percentage of late delivery using **Same Day Shipping Mode**
- Most of late delivery order are occurred in **East Africa, Australia, Latin America, and Asia**

# Shipping Mode



## Second Class



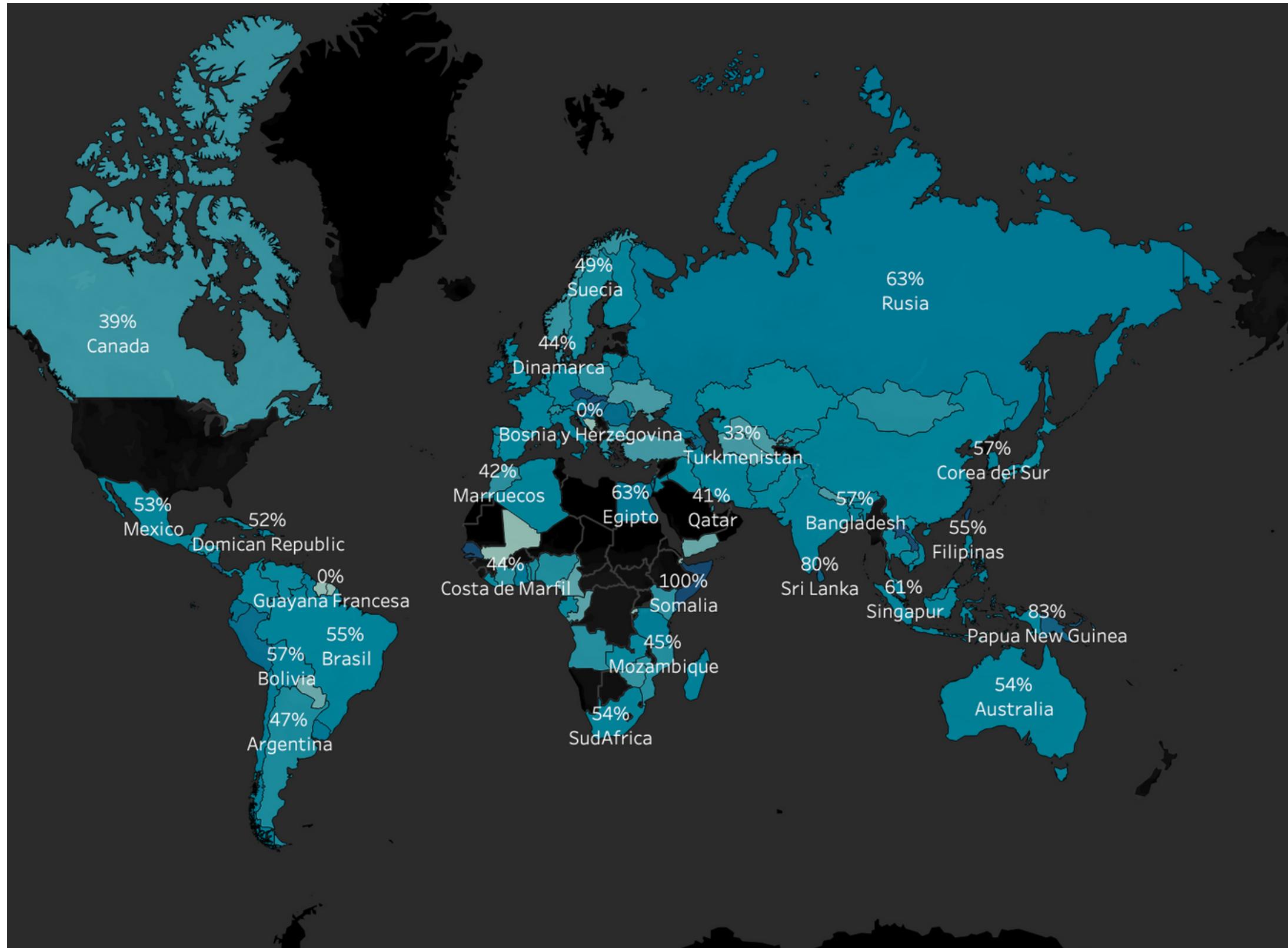
## Summary

- Percentage of late delivery using **Second Class Shipping Mode**
- Most of late delivery order are occurred in **West Asia, Central Europe, Southeast Asia, and East Africa.**

# Shipping Mode



## Standard Class



## Summary

- Percentage of late delivery using **Standard Class Shipping Mode**
- Most of late delivery order are occurred in **East Africa, Australia, Latin Africa, and Asia.**

# Recommendation

---



# Recommendations



- **Make a recommendation for customer to use shipping mode for some specific areas to maximise efficiency of the shipping process,** we can't give specific area due to lack of data (e.g: distance, geographical, transporatation, regulation, etc.)
- **Make central point in some location with high percentage of late delivery** to improve efficiency of the delivery process.
- **Make some additional warehouses** in Asia and Africa.



---

End of  
Document

---