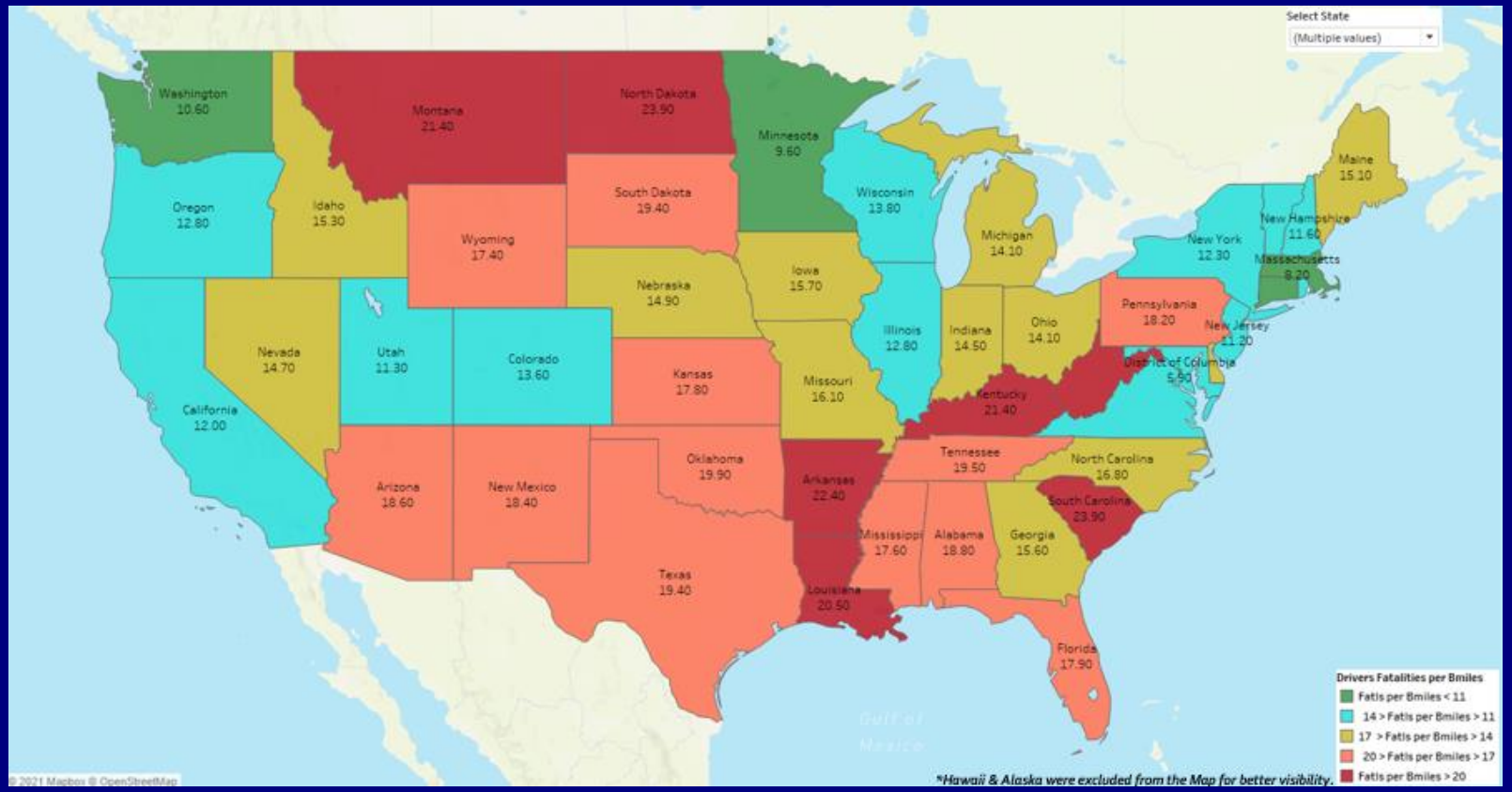
REDUCING TRAFFIC MORTALITY IN THE US – UNSUPERVISED MACHINE LEARNING – K-MEANS CLUSTERING DASHBOARD - POWERED BY TABLEAU

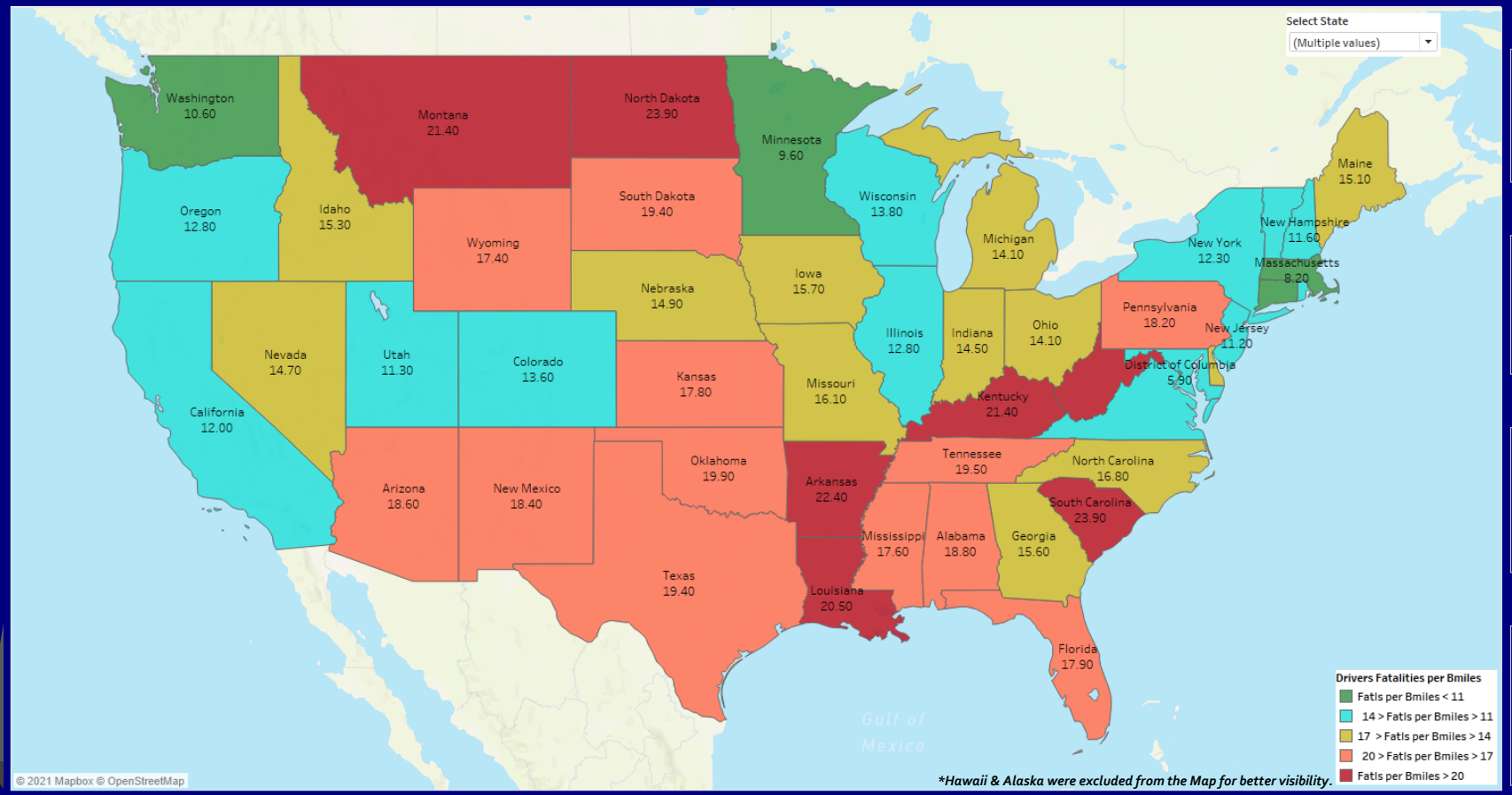
2011

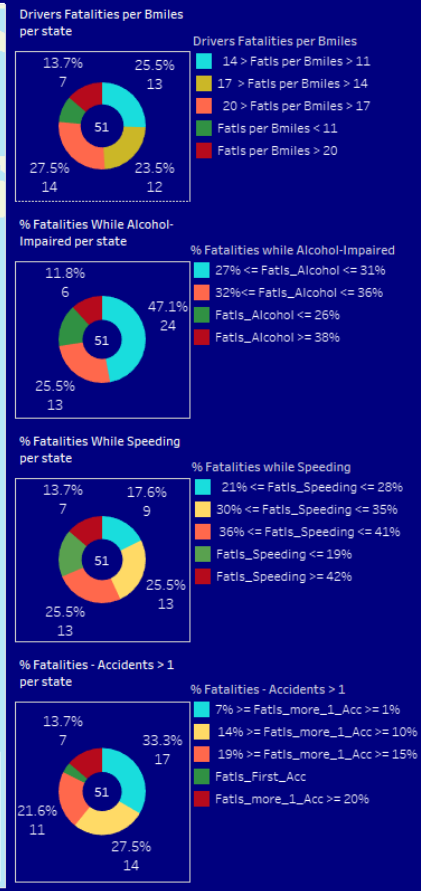


# Drivers Segmentation per US State Using K-means Clustering Powered by Tableau

## Unsupervised Machine Learning

Fatalities Per state Per Bmiles

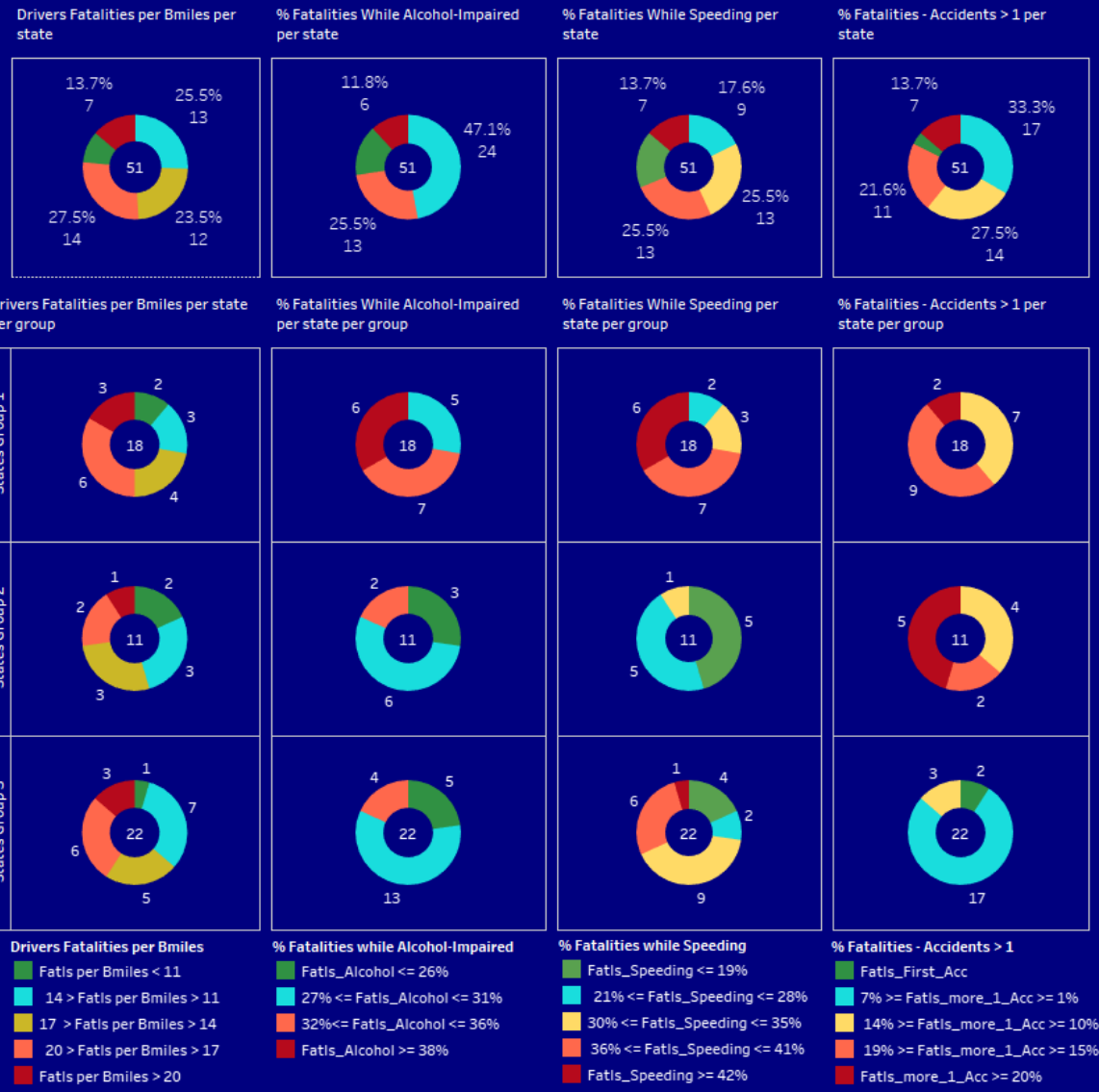


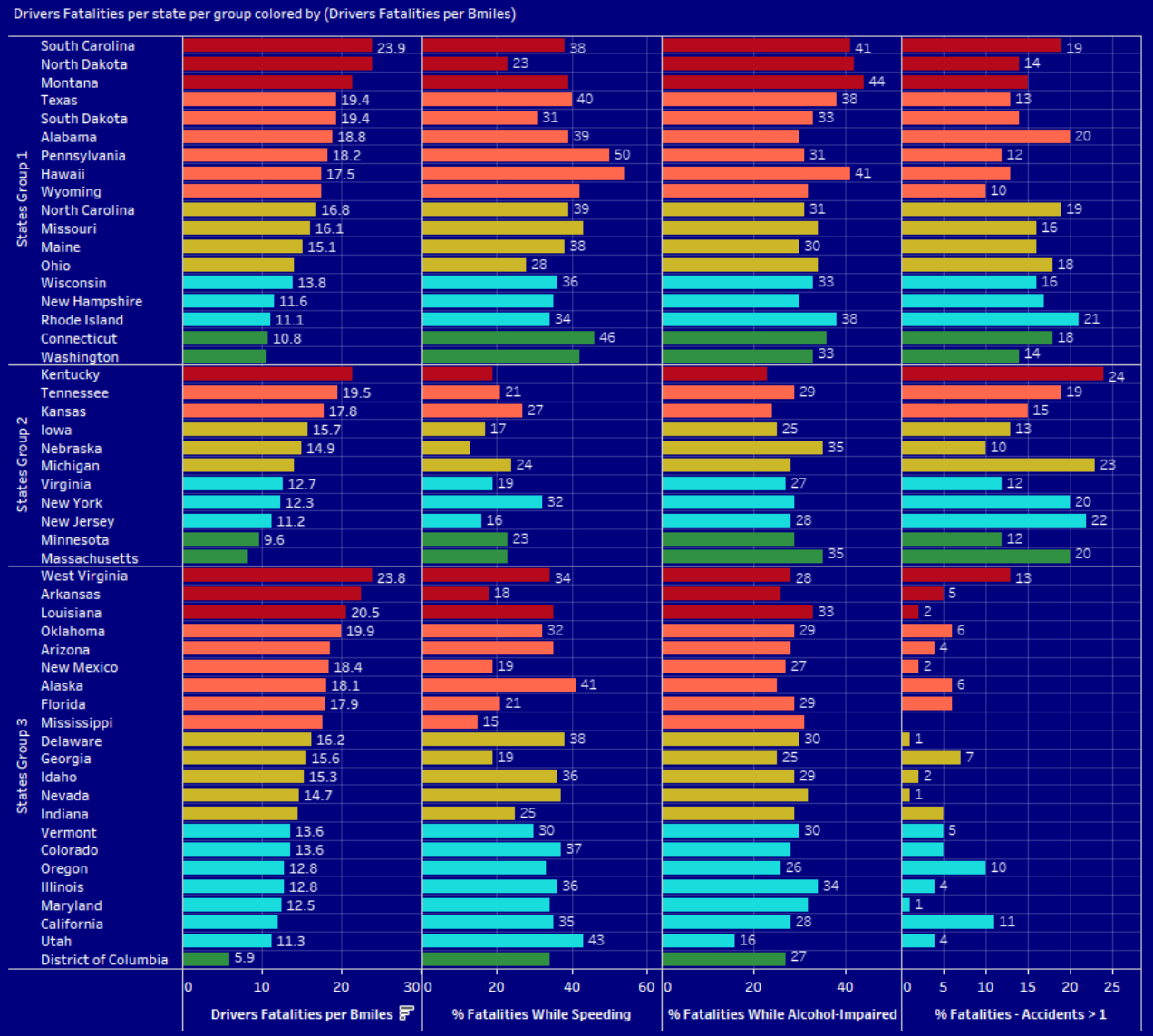




## Drivers Behavior – Per US State (2011 Data):

- ***South Carolina***, ***North Dakota*** ranked 1st and ***West Virginia*** ranked 2nd had the greatest number of fatal collisions per billion miles of travel followed by: ***Louisiana*** ranked 3rd , and then followed closely by ***Montana***, ***Kentucky*** and ***Arkansas*** ranked 4th.
- ***Nebraska*** and ***Utah*** had the least proportion of drivers involved in fatal collisions while speeding and under the influence of alcohol, respectively.
- ***Hawaii*** and ***Montana*** had the greatest proportion of drivers involved in fatal collisions while speeding and under the influence of alcohol, respectively.
- The drivers of ***Mississippi*** and ***District of Columbia*** NEVER involved in fatal accidents more than once. While the drivers of ***Kentucky*** were the most drivers involved in fatal accidents more than once at 24%.

# US Drivers Segmentation Overview



# Drivers Behavior – Unsupervised Machine Learning K-means Clustering (K=3)

**"State Group 1"**
Represents Drivers who had the greatest number of fatal collisions per billion miles of travel while speeding and under the influence of alcohol. Also, those drivers were the 2nd most involved in fatal accidents more than once.
**Alcohol** (Montana, North Dakota, South Carolina and Hawaii), **speeding** (Hawaii and Pennsylvania), **fatal accidents > 1** (Alabama, S/N Carolina and Ohio)

**"State Group 2"**
Represents Drivers who had the least number of fatal collisions per billion miles of travel. Also, those drivers were the 1st most drivers involved in fatal accidents more than once.
**fatal accidents > 1** (Kentucky 24% worst in the US)

**"State Group 3"**
Represents Drivers who had the 2nd number of fatal collisions per billion miles of travel mostly while speeding. Also, those drivers were the least drivers involved in fatal accidents more than once.
**Alcohol** (Louisiana), **speeding** (Alaska), **fatal accidents > 1** (West Virginia)

**"State Group 1" should be the top priority of the authority to start implementing more strict safety measures that will make our roads and highways safer.**

**It is critical that the nation adopt traffic safety improvements that will make our roads and highways safer by focusing on below states:**

| Alcohol | Speeding | Fatal Accidents > 1 |
|---|---|---|
| Montana | Montana | Kentucky |
| North Dakota | South Carolina | South Carolina |
| South Carolina | Hawaii | Montana |
| Hawaii | Pennsylvania | |
| Louisiana | Alaska | |
| | Louisiana | |
| | West Virginia | |