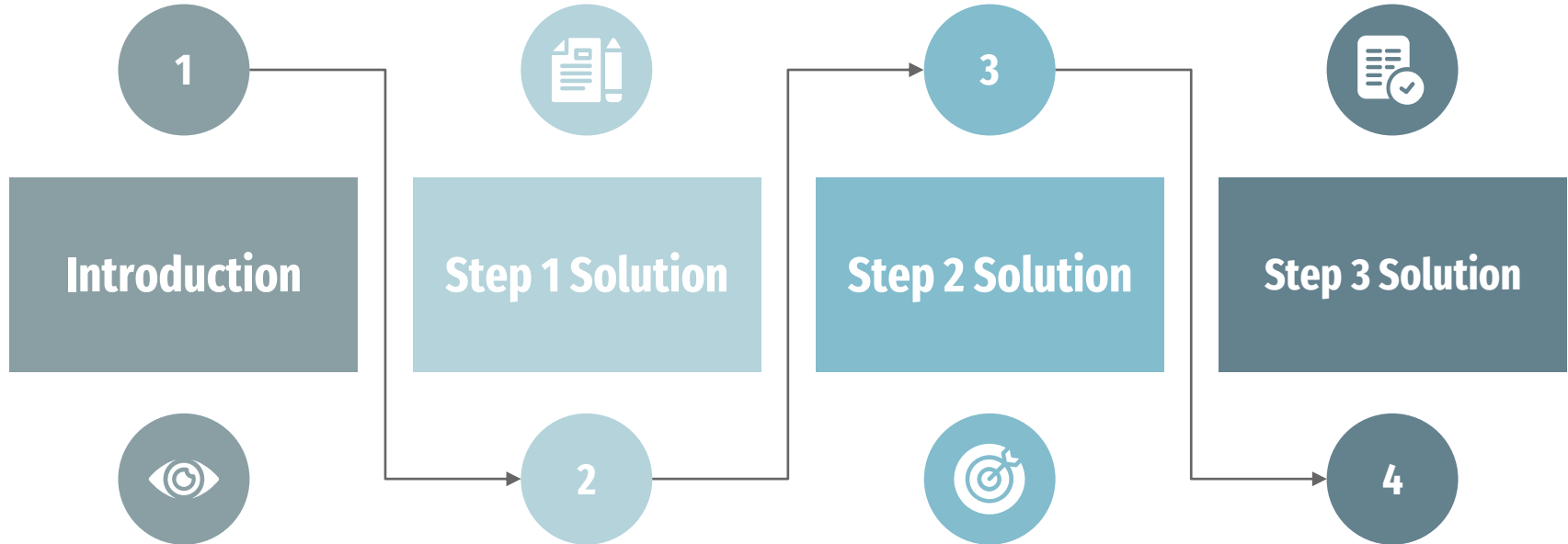


# Data Visualization Solution

by Naif Alsultan

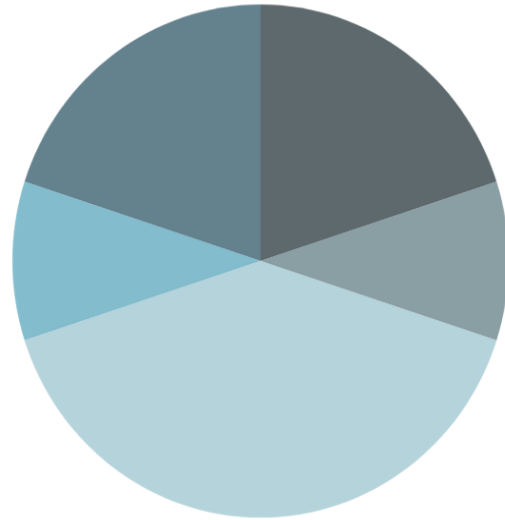


# Presentation Content



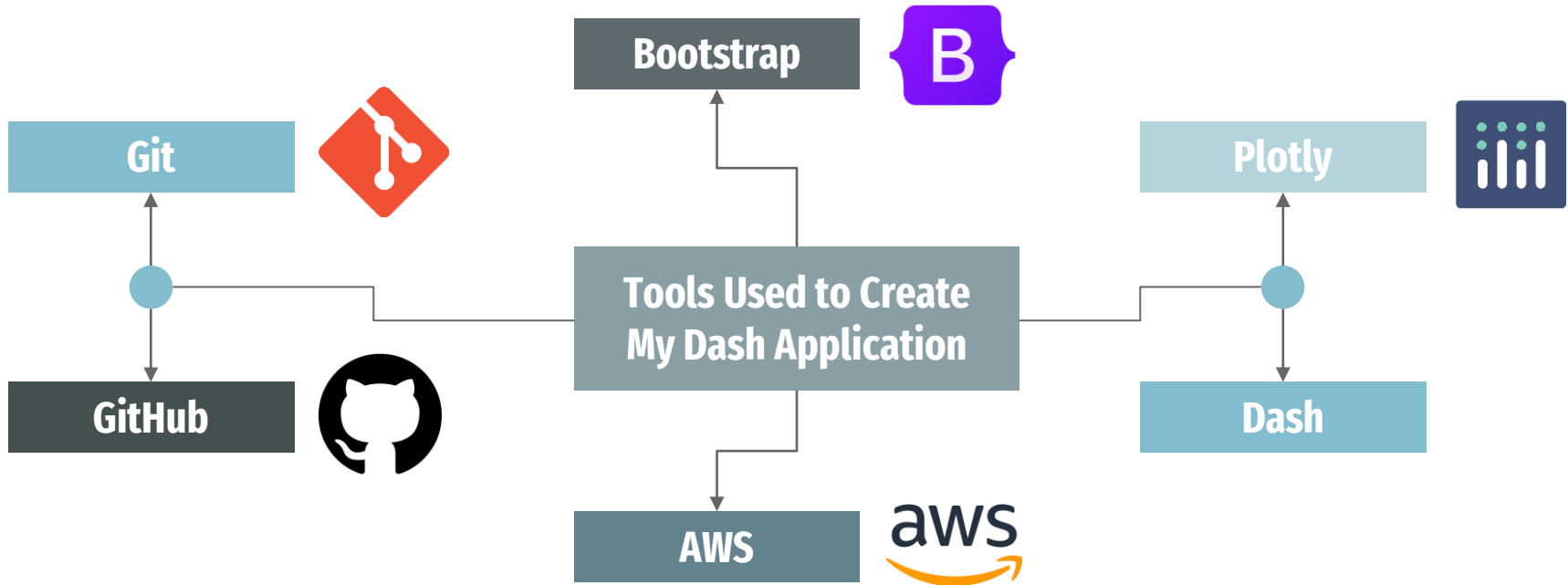
# **1.**

## **Introduction**



# Introduction

Along with this presentation, I have created and deployed a Dash application to display my solution!  
To see my Dash application please visit: [data-visualization-solution.link](https://data-visualization-solution.link)



# 2.

## Step 1 Solution

Analysis of the given data visualization options




## ⊕ Advantages of Option 1

CATEGORY	SPEND (THOUSANDS)		% OF TOTAL	
	Q2	Q3	Q2	Q3
Direct mail	\$14.8	\$16.3	65%	63%
Print	\$3.4	\$3.8	15%	15%
Radio	\$2.5	\$1.8	11%	7%
Television	\$1.1	\$1.4	5%	5%
Mobile	\$0.0	\$0.9	0%	3%
Podcast	\$0.4	\$0.8	2%	3%
Social media	\$0.4	\$0.5	2%	2%
Paid search	\$0.1	\$0.2	0%	1%
Outdoor	\$0.0	\$0.2	0%	1%
Other	\$0.1	\$0.0	0%	0%
TOTAL	\$22.8	\$25.9	100%	100%



All spendings of the two quarters are shown.



All spendings for all relevant channels are shown.

## ➊ Disadvantages of Option 1

Hard to analyze how spending has changed between the two quarters.



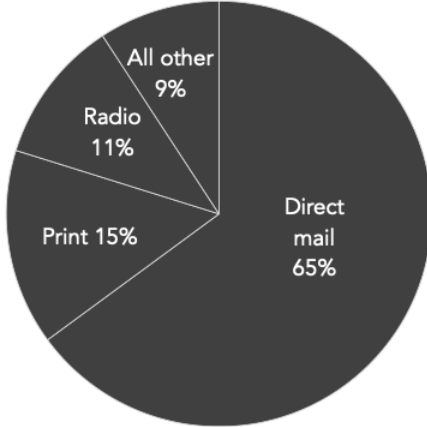
Hard to analyze how spending varies by channel.



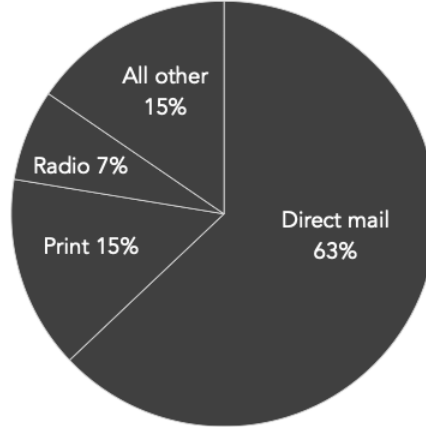
CATEGORY	SPEND (THOUSANDS)		% OF TOTAL	
	Q2	Q3	Q2	Q3
Direct mail	\$14.8	\$16.3	65%	63%
Print	\$3.4	\$3.8	15%	15%
Radio	\$2.5	\$1.8	11%	7%
Television	\$1.1	\$1.4	5%	5%
Mobile	\$0.0	\$0.9	0%	3%
Podcast	\$0.4	\$0.8	2%	3%
Social media	\$0.4	\$0.5	2%	2%
Paid search	\$0.1	\$0.2	0%	1%
Outdoor	\$0.0	\$0.2	0%	1%
Other	\$0.1	\$0.0	0%	0%
TOTAL	\$22.8	\$25.9	100%	100%

## + Advantages of Option 2

Q2 advertising spend



Q3 advertising spend  
% OF TOTAL (\$25.9M)



Easy to analyze how spending varies by channel for a quarter.

Easy to understand.



## ➊ Disadvantages of Option 2

Total spending of Q2 is not shown. Thus, analyzing how spending has changed between the two quarters is impossible.

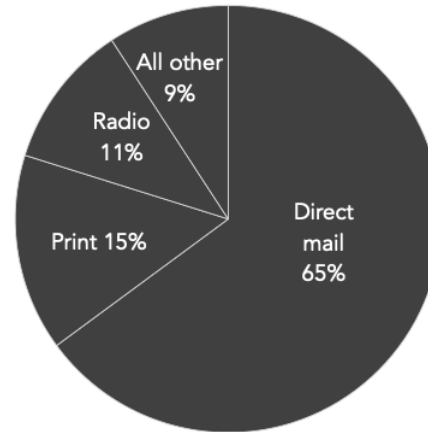
Cannot immediately determine the spendings by channel since only percentages are shown.

Total spending of Q3 is in millions but it is actually in thousands.

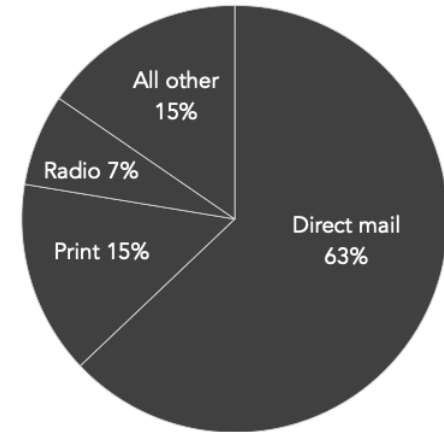
Several channels are combined into a single category.

Percentages are misleading since total spendings of the two quarters are not equal.

Q2 advertising spend



Q3 advertising spend  
% OF TOTAL (\$25.9M)



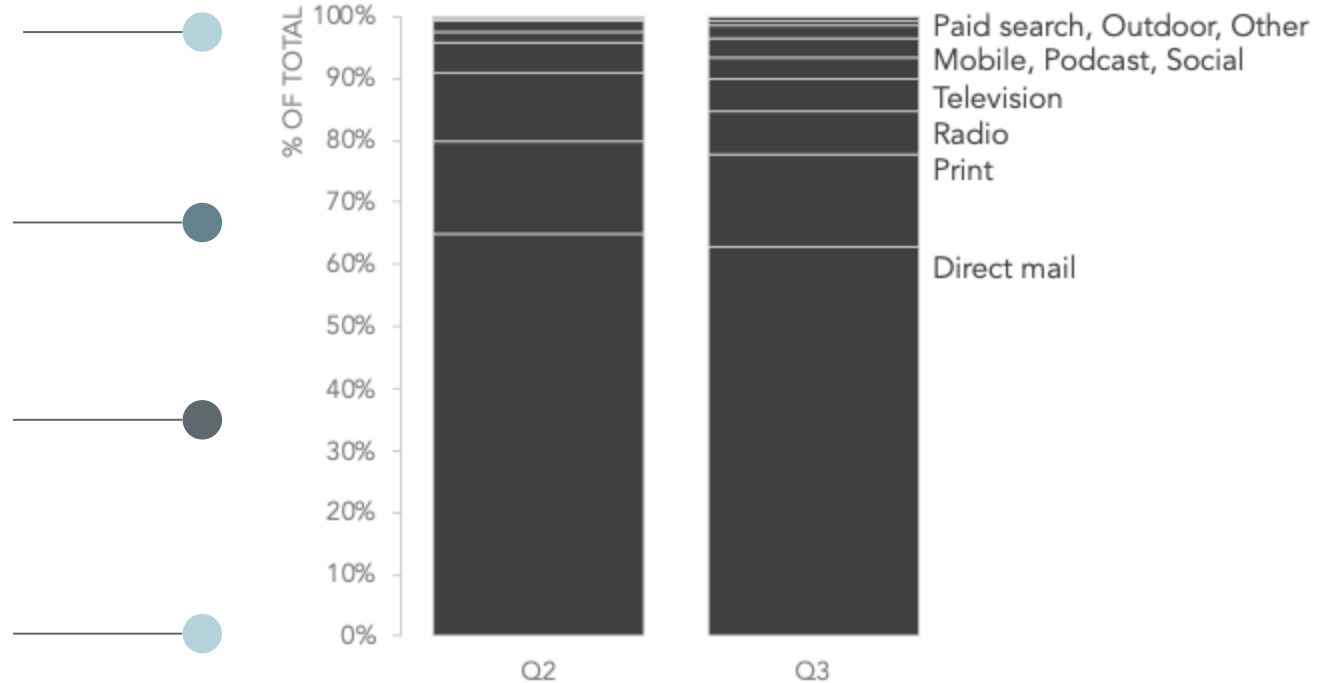
## ➊ Disadvantages of Option 3

Total spendings are not shown.  
Thus, analyzing how spending  
has changed between the two  
quarters is impossible.

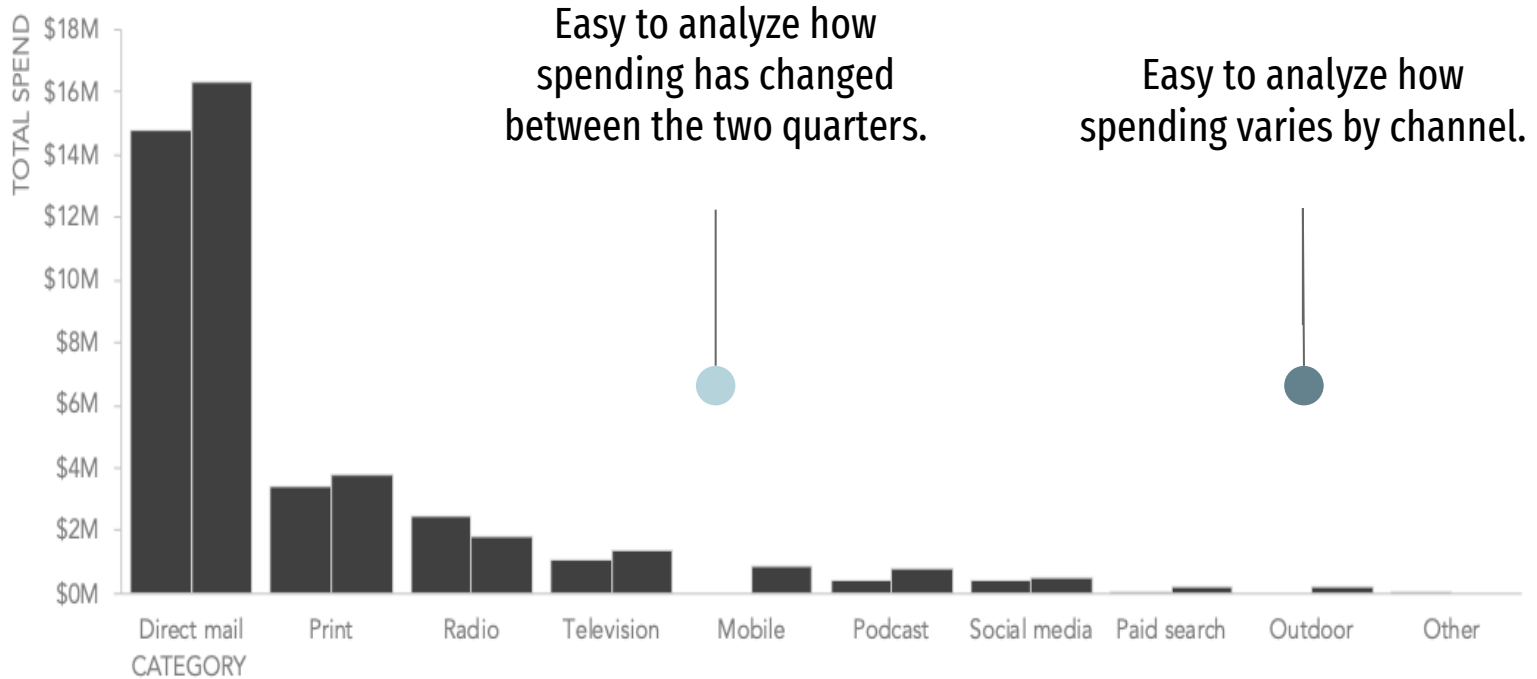
Cannot determine the spendings  
by channel since only  
percentages are shown.

Cannot immediately determine  
the percentage of each channel.

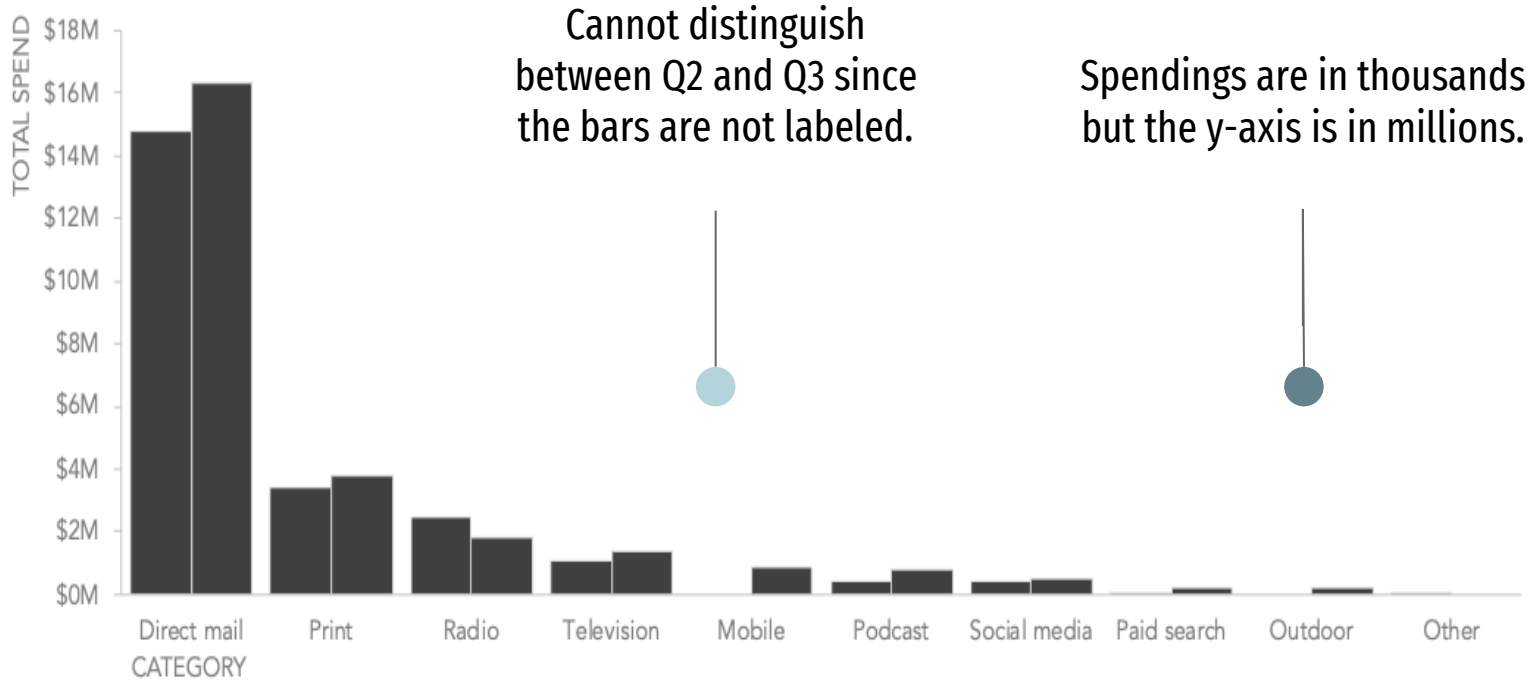
Hard to determine the mapping  
between the labels and the  
stacked bars.



## ⊕ Advantages of Option 4



## ➊ Disadvantages of Option 4



# 3.

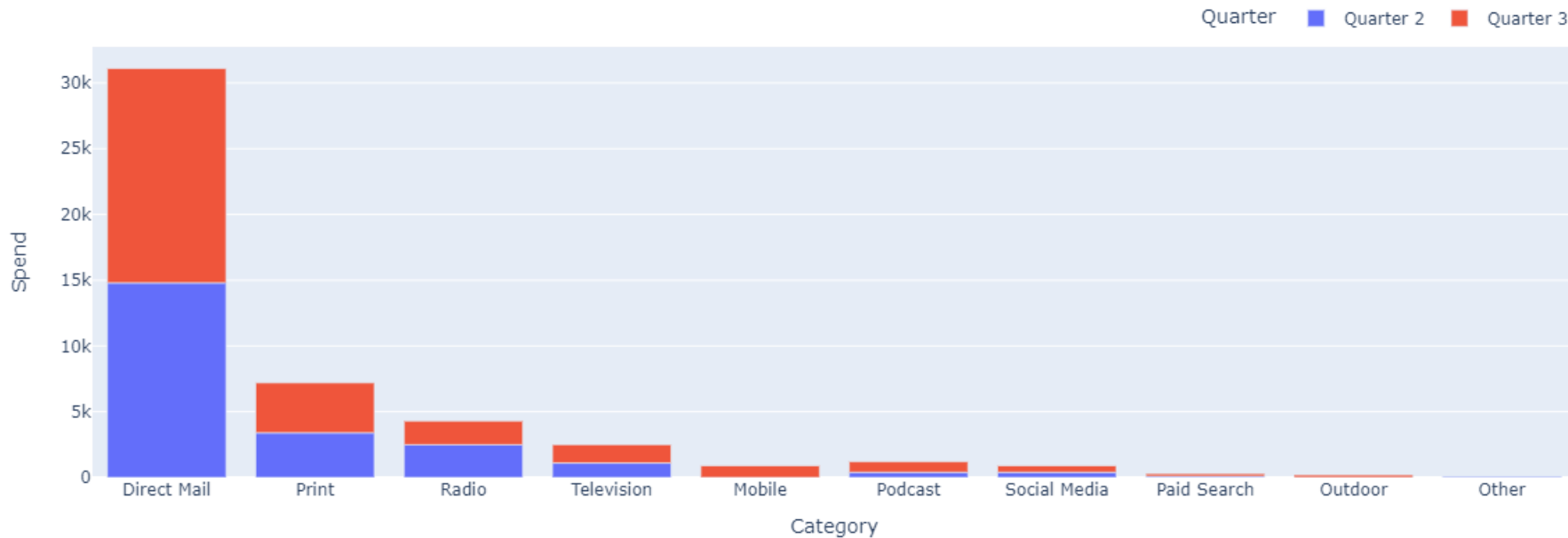
## Step 2 Solution

Analysis of more data visualization options



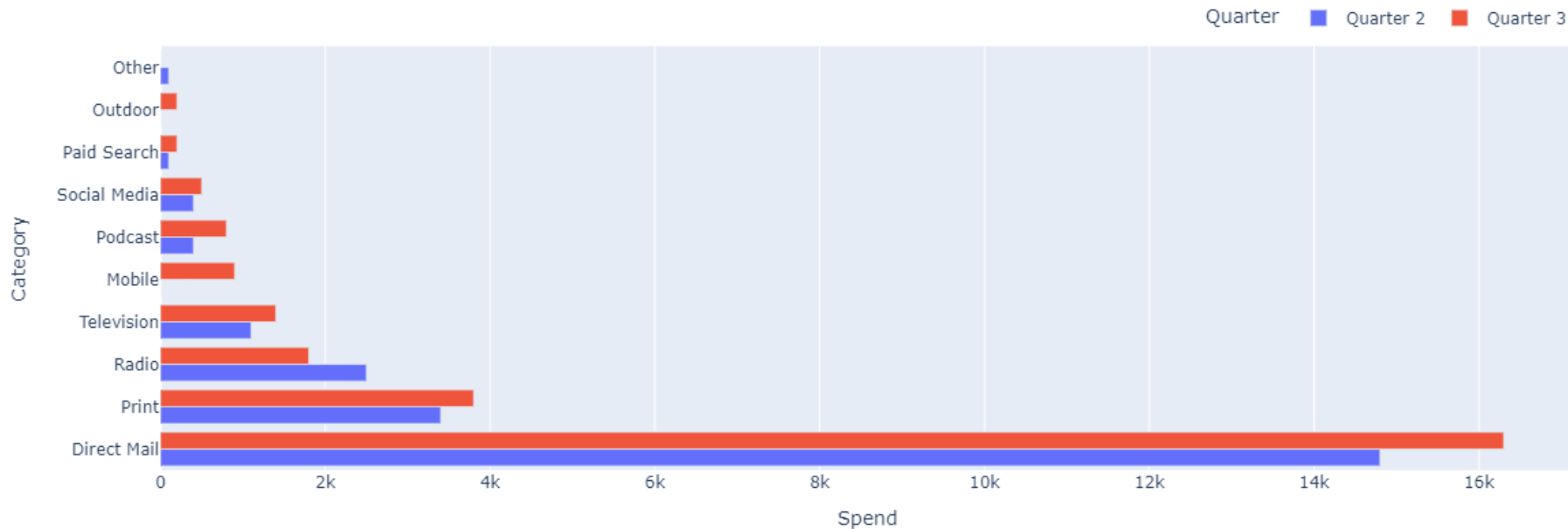
# Stacked Bars

From the following chart we can see the total spendings of the two quarters for each category. However, determining the change between the two quarters cannot be done effectively. Thus, it is not ideal.



# Pairwise Horizontal Bars

From the following chart we can have a side by side comparison between the spendings of the two quarters. However, we cannot determine the percentage of the change between the two quarters.



# 4.

## Step 3 Solution

The most effective chart to communicate the data





# Pairwise Vertical Bars

I have chosen the following chart to be the most effective way of communicating the data because the spendings of each quarter and of each category can be compared side by side with a percentage value that indicates the changes between the two quarters.

