**KAAMADHENU ARTS AND SCIENCE COLLEGE, SATHYAMANGALAM**

**DEPARTMENT OF MATHEMATICS**

**Course Name: Data Analytics with Tableau**

**Academic Year: 2023-2024**

A project report entitled as

# "Insights into iRvolution: A Data-driven Exploration of Apple's iPhone Imapact in India with Tableau"

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# iRvolution: A Data-driven Exploration of Apple's iPhone Imapact in India

## 1. INTRODUCTION

### 1.1 OVERVIEW

When CEO Steve Jobs announced in January 2007 that Apple would be releasing a revolutionary iPhone five months hence, consumers waited with bated breath for a phone that would deliver all the features of their iPods as well as a smart phone. Anticipation grew, just as Jobs knew it would, as June approached. The launch would become one of the most heralded technological product splashes Apple, known for its masterful media build-up, had ever planned. How the iPhone was developed, priced, promoted, and distributed is lesson for marketers around the world. Apple investors were pretty happy with the outcome as well.

One year after Apple Inc. CEO Steve Jobs announced the company's industry-changing iPhone on January 9, 2007, at the Macworld convention in San Francisco, the share price of Apple's stock has more than doubled to a January 9, 2008, value of $179.40 (See Chart 1). This stock price incorporates all of Apple's business, but a large part of the rise in value can be attributed to the launch of the cutting-edge iPhone, of which four million have already been sold through mid-January 2008 (Carew, 2008).

Based on this simple observation of the stock price, the iPhone can so far be declared a success, at least from a shareholder standpoint. This paper will explore both the pre- and post-launch activities surrounding the iPhone to explain why it was such a success for the stockholders and why Apple's reputation for unparalleled marketing success is deserved.

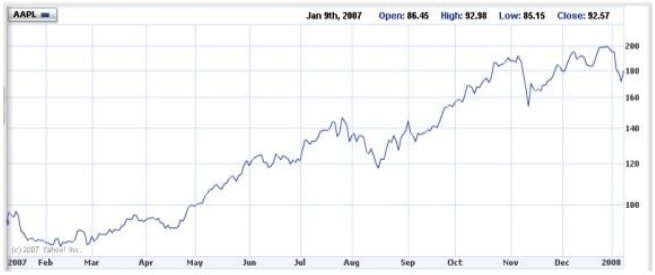



**Chart 1: This chart depicts the astounding growth of Apple's stock from January 9, 2007, to January 9, 2008.**

Imagine for a moment, if you will, that you were a "dude" from the 1970s. And when I mean "The Dude" I really mean the "Dude". I mean the dude who is so much like the dude that it will make the protagonist of Big Lebowski shiver. And now think, if you had a friend called "Walter". And he says, "Dude, there is like this big company in like… 10 years. It'll sell computers and stuff and will revolutionize the tech industry."You would probably roll your eyes,

think how dumb Walter is, and go back to doing whatever it was that you were doing. Basically, all my storytelling that I did till now is a really bad build-up to how big of a company, Apple is. I mean, is it too far to say that **Apple** is a global leader in the technological field. Their contributions to this area have changed how we live and work today. Apple has been able to create such innovation because they employ data-driven insights, coupled with AI technology that allows them to predict trends before they happen. Apple has always been a company that is at the forefront of technology. From smartphones to music, Apple has redefined what it means to be "cool."They have used AI and **Big Data** to create better products, which led them to success.

# 1.2 Purpose

The Wall Street Journal's technology guru, Walter Mossberg, finally published his review of the iPhone only two days before its launch. Overall, he described the iPhone as a breakthrough handheld computer despite some shortcomings (Mossberg and Boehret, 2007). The iPhone's design is creating problems with some iPhone accessories.

For example, the headphone jack is deeply recessed on the multimedia device, meaning an adapter will be needed in order to use certain headphones with the iPhone.

Secondly, the device does not have the ability to cut, copy, and paste text, which could be extremely annoying if people are going to use the device to send and receive emails throughout their workday.

The iPhone is also missing instant messaging software, but it still has the ability to send and receive standard text messages.

Though the phone has a two-megapixel camera, it lacks the ability to record videos, a common feature on competing smart phones.

Finally, when the iPhone is first released it will not have the ability to play most video on the Internet because it does not utilize Adobe's Flash technology. Mossberg still has plenty of features to brag about on the iPhone, starting with the gorgeous 3.5- inch screen.

Most importantly, during the two-week test the device lacked any protection, and it never received a single scratch on the screen or on any other part of the device.

This is potentially very important to the early majority adopters because the iPod plastic screen scratched easily.

The highly touted virtual keyboard lived up to the hype as Mossberg found it to be functional during the test.

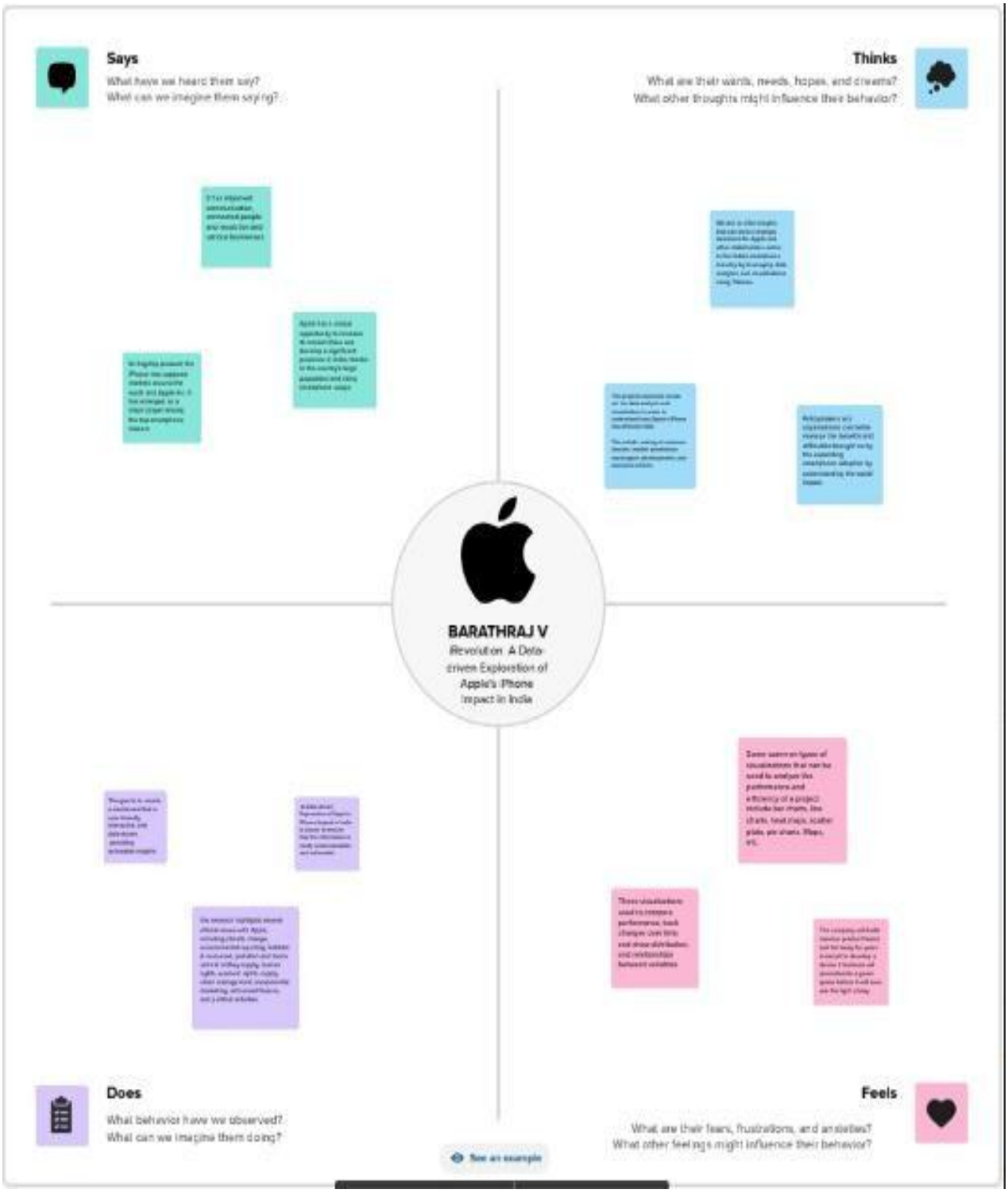
One important question mark regarding the iPhone is its battery life; consumers are concerned the battery will not be sufficient to last all day and still utilize all of the iPhone's capabilities.

Mossberg writes that the battery is adequate and gave him seven hours and 18 minutes of continuous talk time while retrieving email constantly (Mossberg and Boehret, 2007).

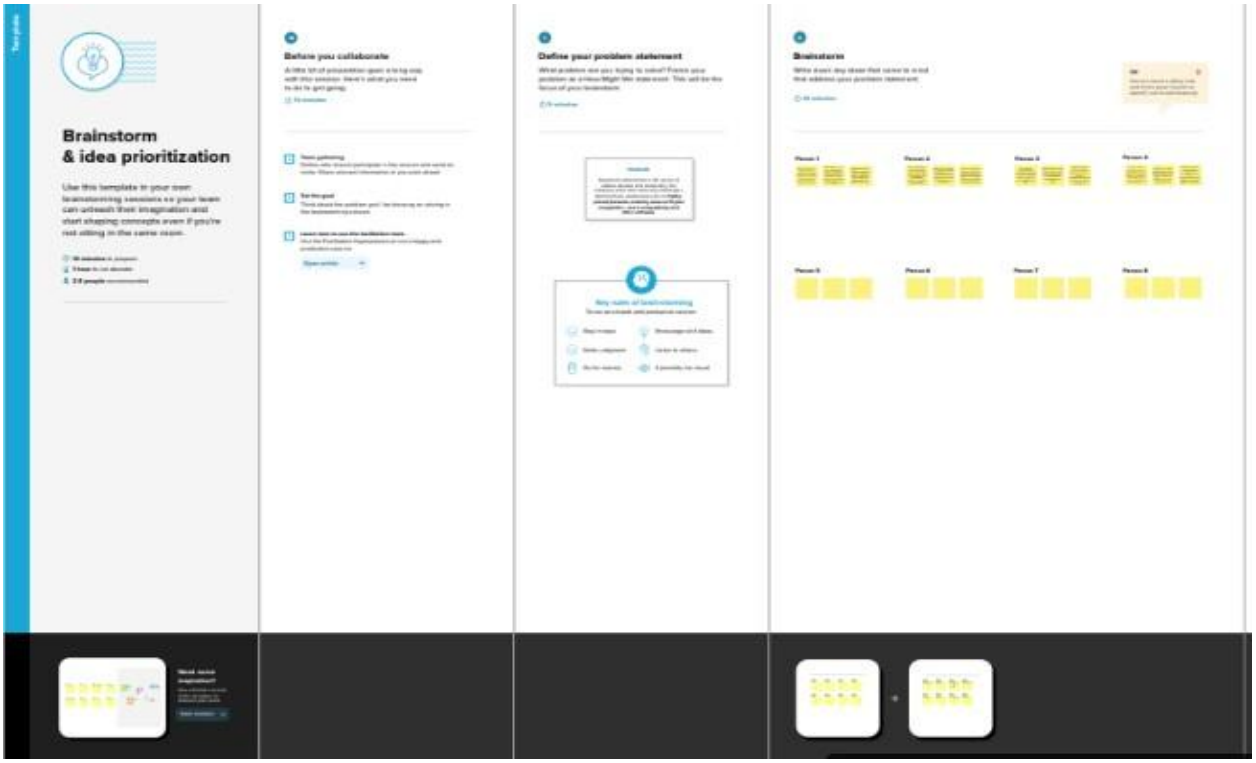
The world has changed as a consequence of the increasing use of smartphones, which have improved communication, connected people, and revolutionized many different businesses. With its main product, the iPhone, capturing markets around the world, Apple Inc. has emerged as a prominent player among the top smartphone makers. India, one of the economies with the greatest economic growth, has seen a tremendous increase in smartphone usage, making it an interesting market to study the effects of Apple's iPhone.

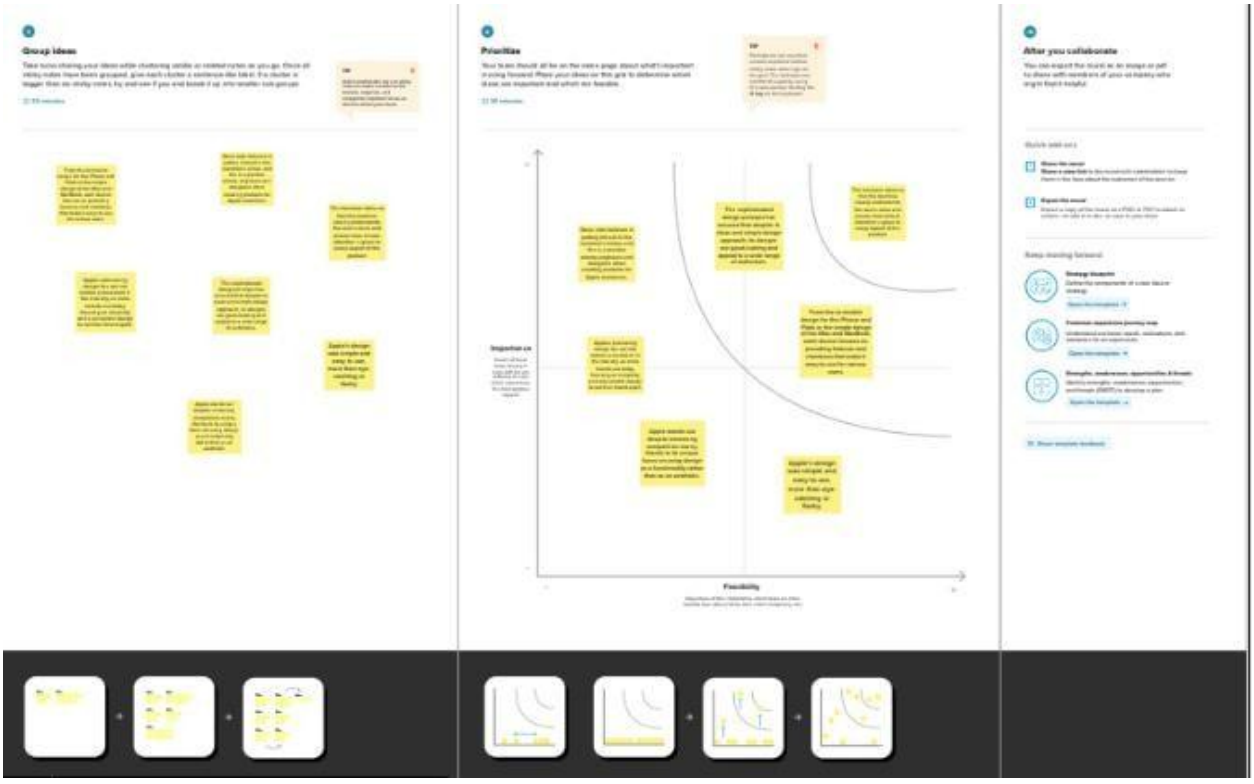
# 2.PROBLEM  DEFINITION AND DESIGN THINKING

## 2.1 EMPATHY MAP



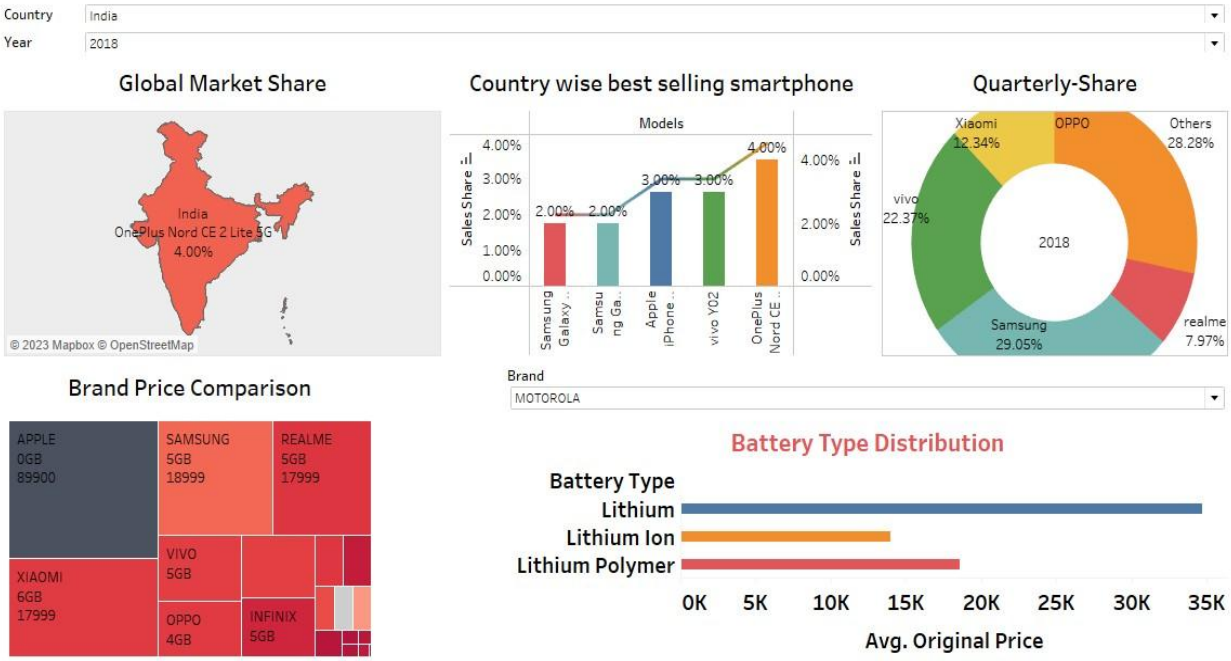
# 2.2 IDEATION & BRAINSTROMING MAPPING



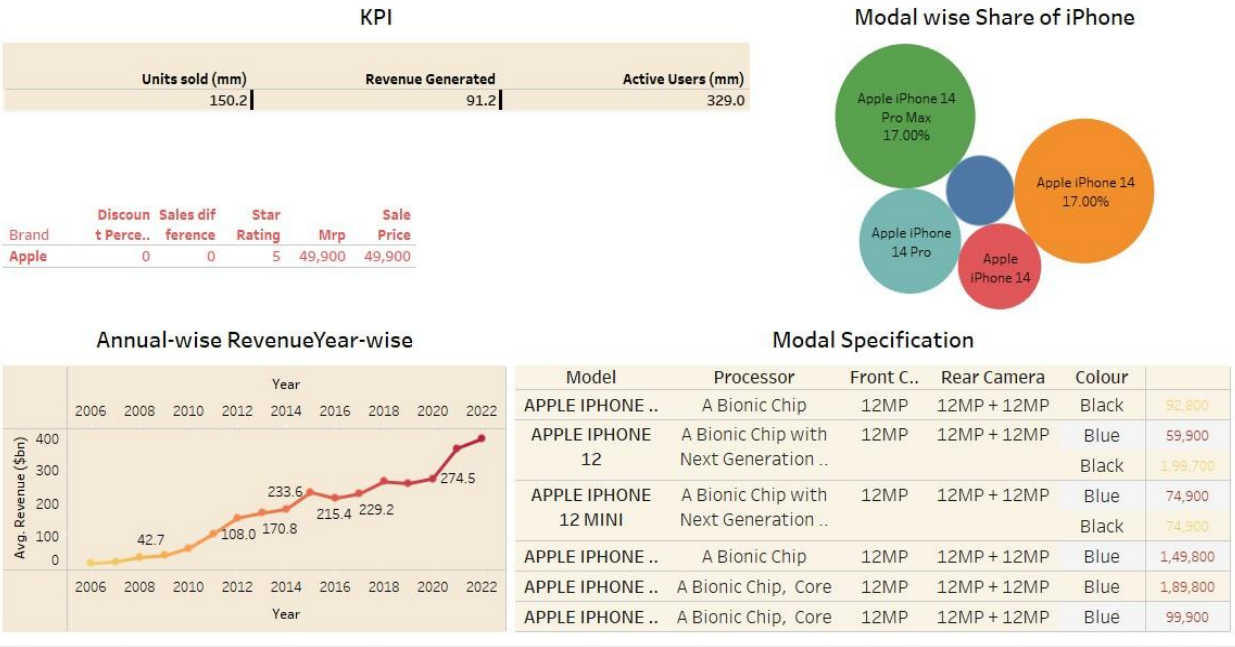



# 3.RESULT

## DASHBOARD 1

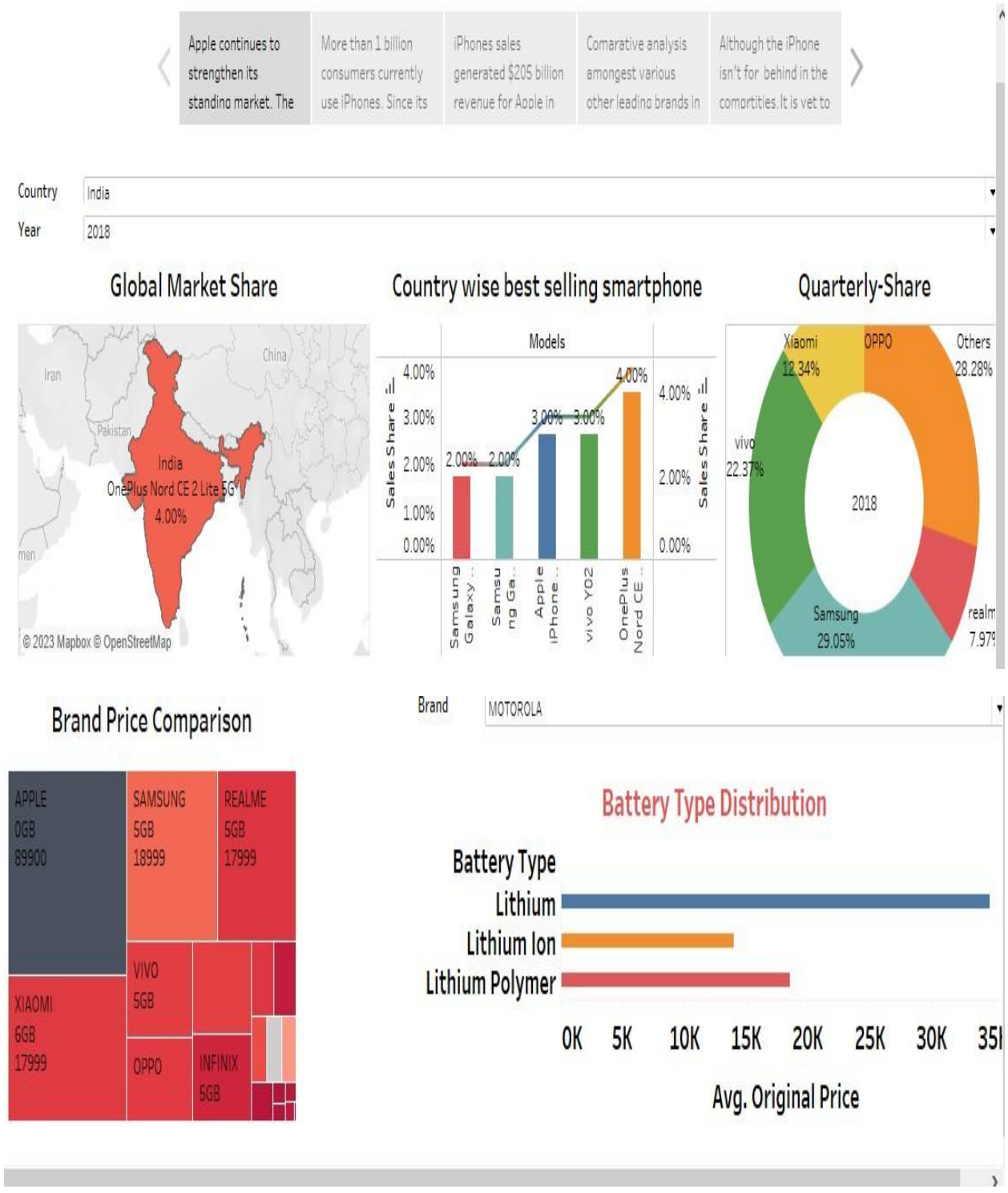



## DASHBOARD 2



# STORY

## STORY 1



# VISUALIZATION

## 1. KPI

| Brand | Discount Percentage | Sales difference | Star Rating | Mrp | Sale Price |
|---|---|---|---|---|---|
| Apple | 0 | 0 | 5 | 49,900 | 49,900 |

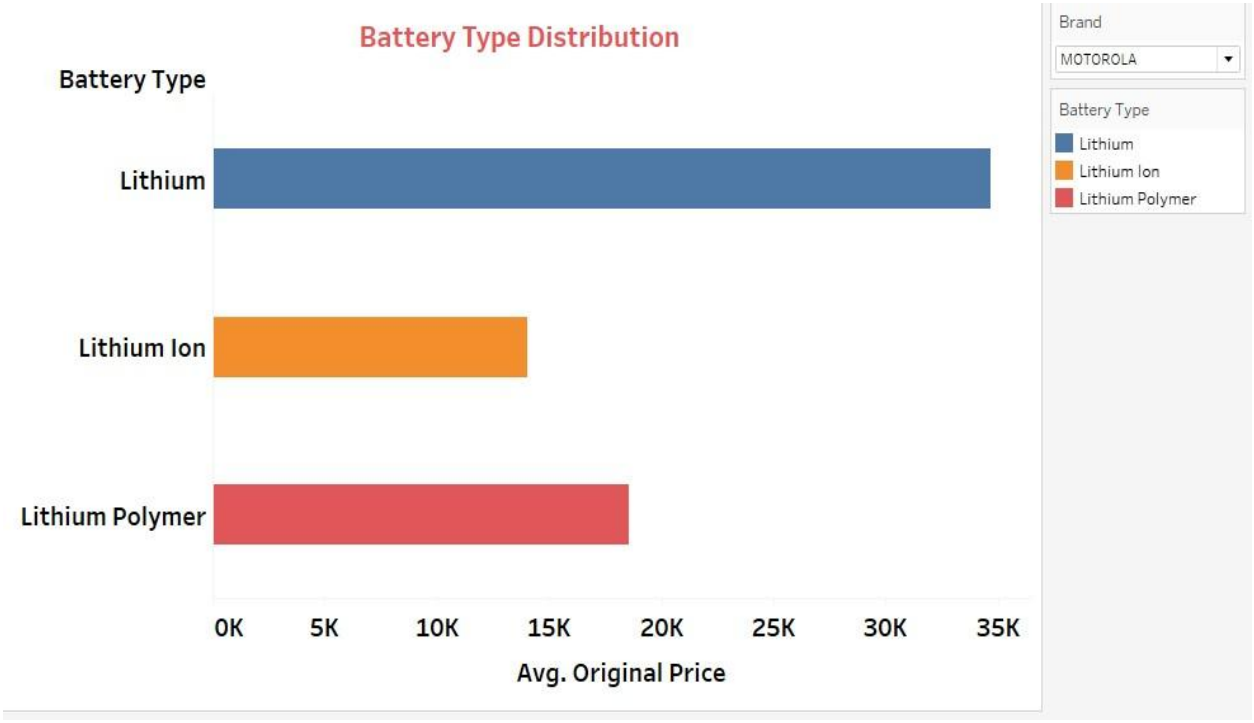
## 2. MODEL SPECIFICATION

Modal Specification

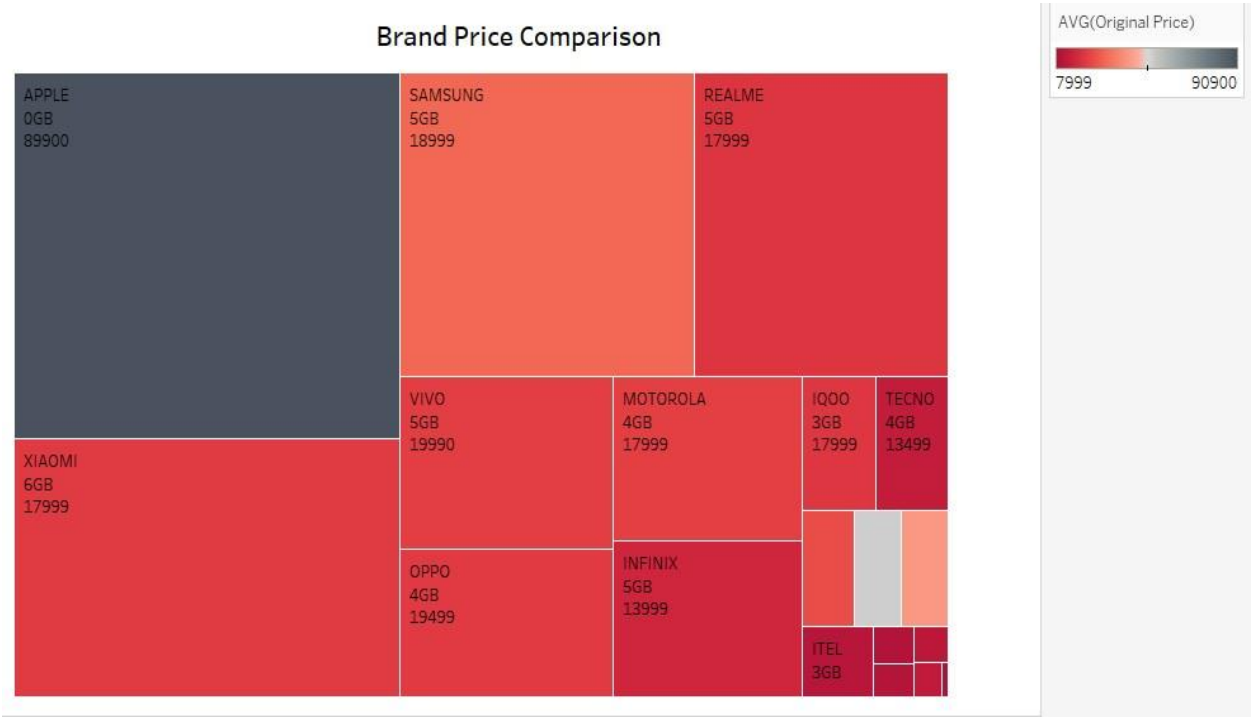
| Model | Processor | Front C.. | Rear Camera | Colour | |
|---|---|---|---|---|---|
| APPLE IPHONE 11 | A Bionic Chip | 12MP | 12MP + 12MP | Black | 92,800 |
| APPLE IPHONE 12 | A Bionic Chip with Next Generation Neural Engine | 12MP | 12MP + 12MP | Blue | 59,900 |
| | | | | Black | 1,99,700 |
| APPLE IPHONE 12 MINI | A Bionic Chip with Next Generation Neural Engine | 12MP | 12MP + 12MP | Blue | 74,900 |
| | | | | Black | 74,900 |
| APPLE IPHONE 13 | A Bionic Chip | 12MP | 12MP + 12MP | Blue | 1,49,800 |
| APPLE IPHONE 14 | A Bionic Chip, Core | 12MP | 12MP + 12MP | Blue | 1,89,800 |
| APPLE IPHONE 14 PLUS | A Bionic Chip, Core | 12MP | 12MP + 12MP | Blue | 99,900 |

Colour
(Multiple values)
Brand
APPLE
Blue
Black

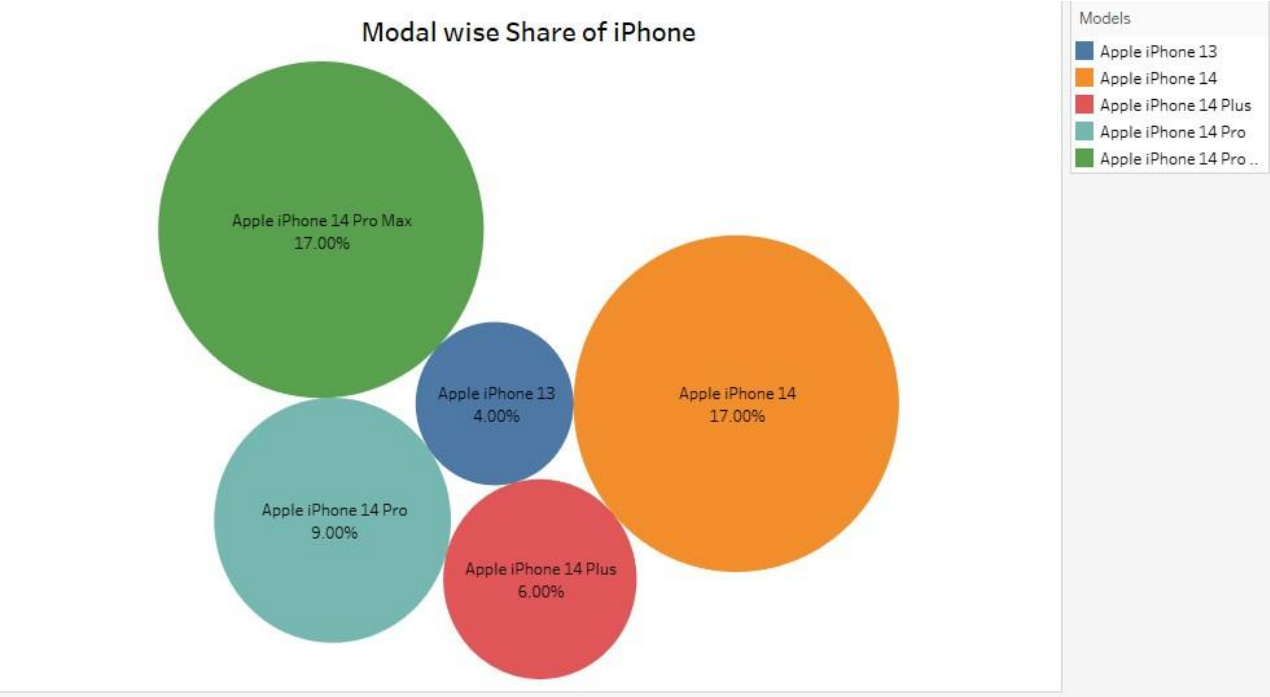
## 3. BATTERY TYPE DISTRIBUTION



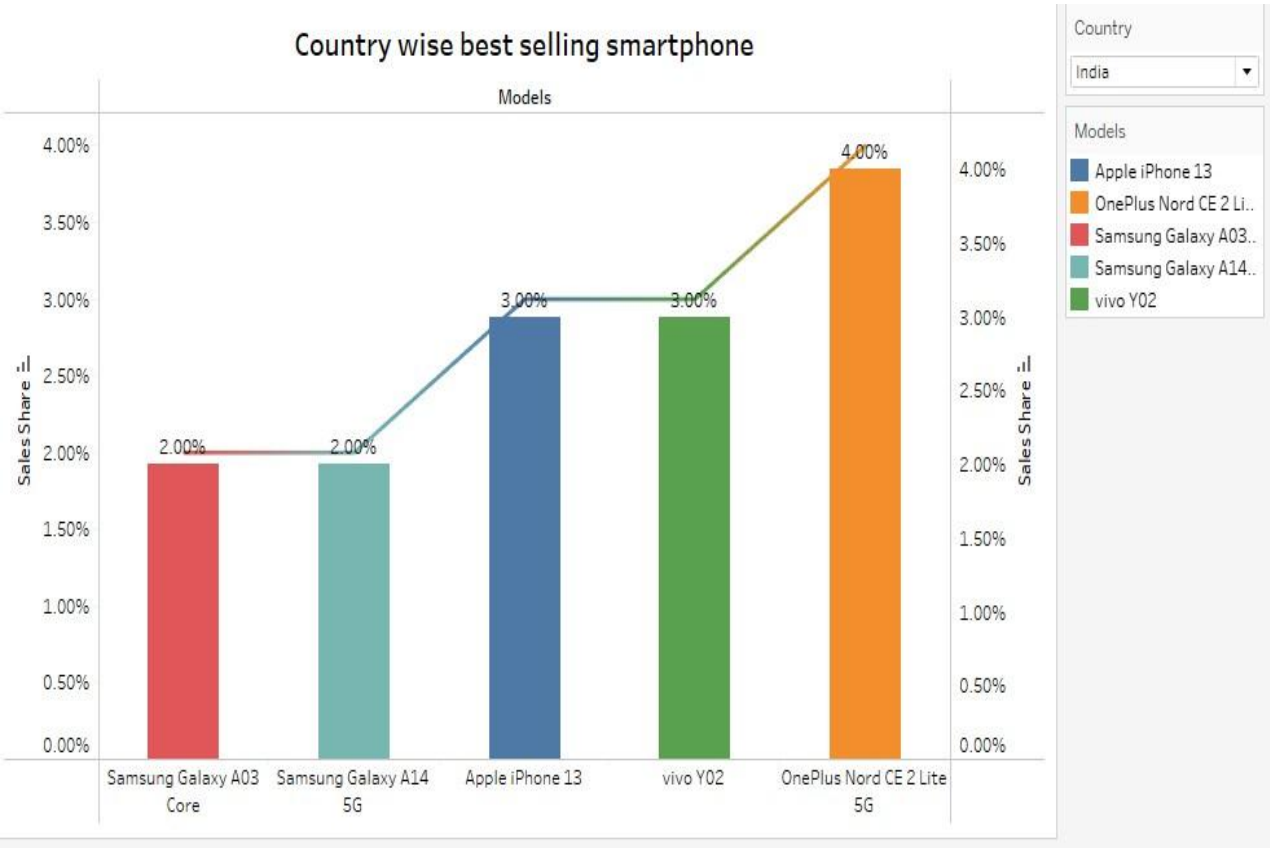

## 4. BRAND PRICE COMARISON



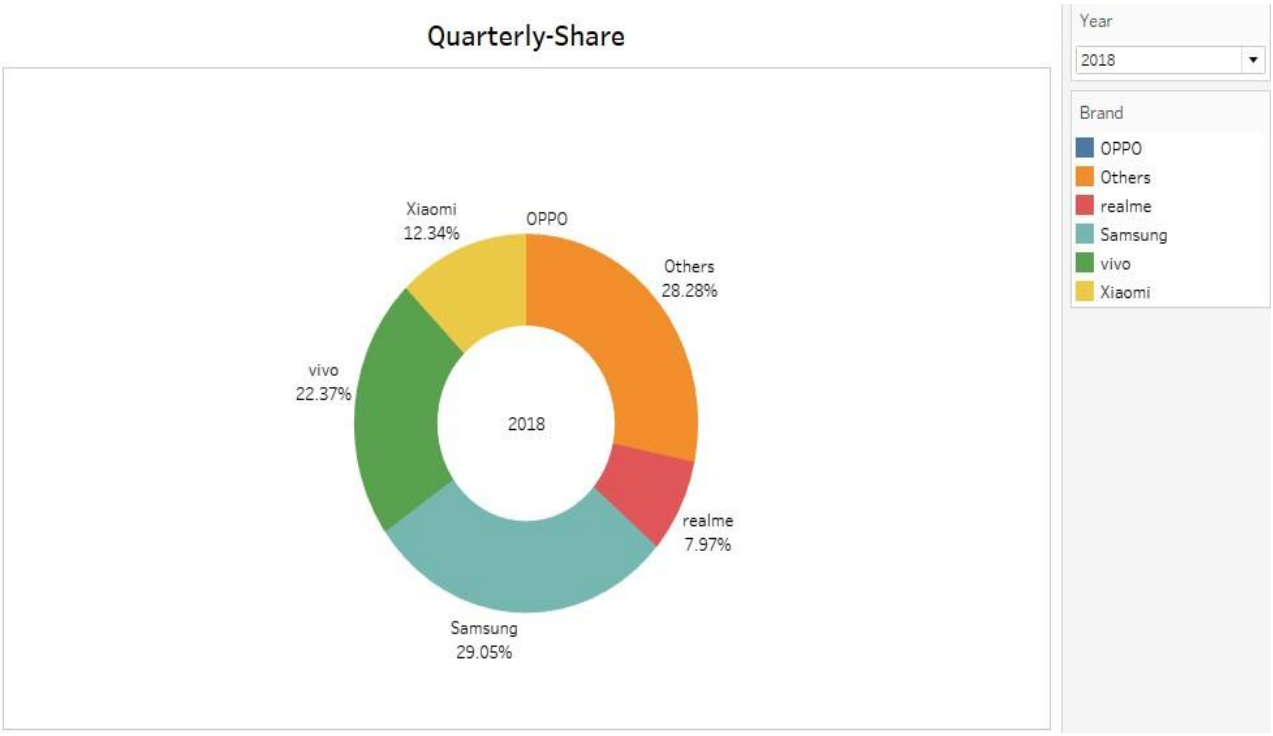
## 5. MODEL WISE SHARE OF IPHONE




## 6. COUNTRY WISE BEST SELLING SMORTHONE

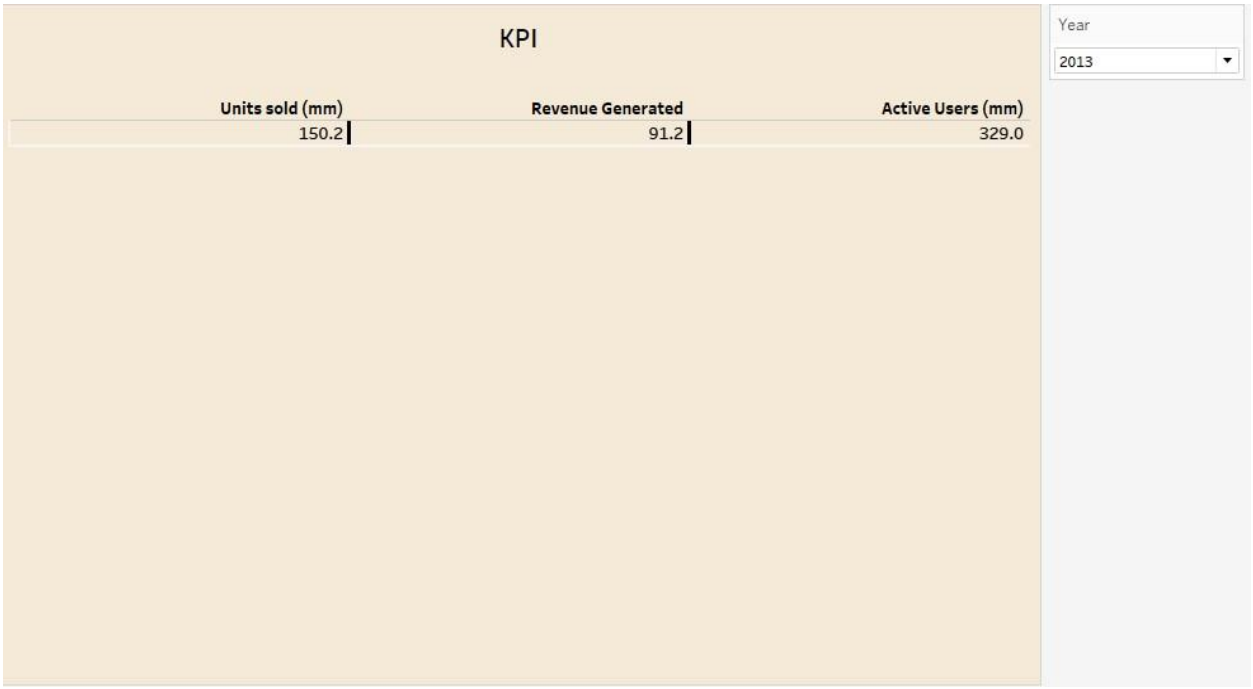


## 7. QUARTERLY-SHARE




## 8. ANNUAL-WISE REVENUE YEAR-WISE

## 9. KPI-2




## 10. GLOBAL MARKET SHARE

# 4. ADVANTAGES AND DISADVANTAGES

## 4.1 ADVANTAGES

One of the reasons that the idea, concepts and practice of *data-driven culture* has become such a sensation amongst so many innovative and forward looking companies and business establishments (*Amazon*, *Netflix* and *T-Mobile* to name a few), is quite simply the proven fact of its immense advantageousness to the various forms of organizational development.

An explicit listing of some of the more obvious benefits and advantages of a *data-driven culture* to organizations would include:


### 1. Allows For First-Mover Advantage

Data--and more importantly, its analytics--can help organizations respond to market changes faster. By harnessing data analytics, businesses can predict future trends, identify consumer behaviors and detect new business opportunities more quickly, creating the potential for obtaining significant market advantage.

### 2. Grow Sales and Improve Processes

Every business wants to maximize revenue growth. In a competitive global marketplace, data plays a crucial role in identifying and translating data into revenue opportunities. For example, slower sales growth can be a sign of mediocre sales team performance. By digging into the data, a leader can identify problems and develop sales and marketing strategies that can improve performance and grow revenues.

Also, organizations would be capable of implementing incremental changes, monitoring vital metrics, and making further adjustments based on the outcome of *data-based decision management*. This enhances the overall performance and efficiency of a business organization.

This approach is considered essential, as it involves making decisions based on facts; not dependent on the knowledge level or skills of team or department leaders. It is also efficient for creating a higher capacity to scale changes which is a potential for any rapid implementation.

## 3. Better Serve Customers

Organizations can analyze data and determine what consumers prefer. For example, in the customer support center, data--in the form of general feedback, can help organizations learn the most efficient and cost-effective ways to address customer questions and issues, reducing problem resolution times and improving customer experiences.

## Becoming Data-driven

Though I am yet to come across any one single and generally agreed upon roadmap that efficiently details out the exact series of steps or actions that would accurately and definitively lead an organization successfully to becoming *data-driven* (mostly a result of the fact that different organizations handle and interact with data differently, meaning that there can be no one-size-fits-all tool and no waterfall solution or approach), sufficient research on my end however, has revealed that all successful, as well as striving data-driven organizations do all seem to have one thing in common:

## 4.2 DISADVANTAGES

Apple increases the price of iPhones every year. iPhone is currently one of the most expensive smartphones out there usually due to its constantly updated physical appearance and tweaks made by engineers within the phone.

Apple's focus is on becoming more user-friendly, however, they turned out to be not so cost. Users are quick to complained about the iPhone price but are still so quick to purchase newly released iPhones. Even the older models that are still in use today have higher price compared to other smartphones. There is no getting around the price for those wanting an iPhone.

iPhones comes with a storage range of 64 GB, 128 GB, 256 GB, 512 GB, and 1 TB. If more storage is needed, they offer 5 GB of free iCloud storage where users can store data within the online cloud rather than in their iPhone's internal storage. It may seem like a decent amount but with the number of apps and better quality photos stored in a phone, those can be used up within a year or less.

With the better quality camera in these newer iPhones, the data required to keep the photos takes up more space than ever before. The only other way to get additional storage is to pay a monthly fee for more iCloud storage or look into buying an external hard drive. This can easily annoy iPhone users, especially those who work on their phones and need additional space

for files. For those looking to save money, the lower storage is the better way to go, but it will cost more in the long run to purchase additional storage

# 5. APPLICATIONS

The world has changed as a consequence of the increasing use of smartphones, which have improved communication, connected people, and revolutionized many different businesses. With its main product, the iPhone, capturing markets around the world, Apple Inc. has emerged as a prominent player among the top smartphone makers. India, one of the economies with the greatest economic growth, has seen a tremendous increase in smartphone usage, making it an interesting market to study the effects of Apple's iPhone. In order to shed light on important factors like market penetration, customer preferences, economic ramifications, and societal changes, this research report will perform a data-driven investigation of the impact of the iPhone in India.

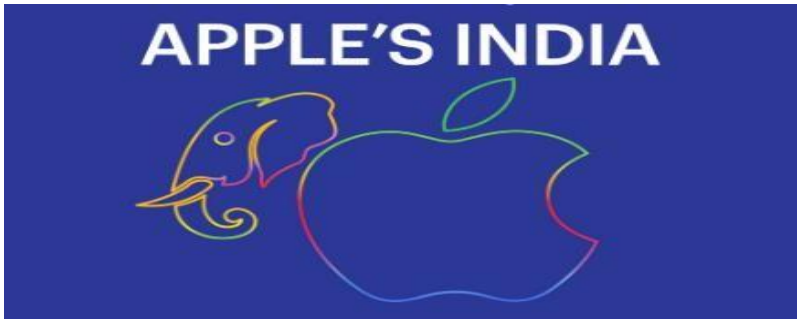
This study will offer invaluable insights into the transformative impact of the iPhone on India's technological landscape and the lives of its consumers by using advanced data analytics techniques and analyzing large datasets.

Apple has a special chance to increase its market share and develop a significant presence in India thanks to the country's large population and rising smartphone adoption. Each new iPhone model unveiling generates excitement and anticipation among Indian buyers.

By utilizing the plethora of information Already accessible, this research aims to go beyond conjecture and anecdotal evidence in order to develop a thorough knowledge of the effects of the iPhone.

**iPHONE SALES** :

Since the release of Apple's iPhone on June 29, 2007, it has sold an astounding four million units (Carew, 2008). The hype surrounding its release helped it become the fourth most popular handset in the U.S., and by the end of the October, Apple reported selling 1.12 million units. Additionally, it has become AT&T's most popular handset, commanding nearly 13 percent of its overall sales (Appleinsider, 2007). During Apple's 2008 Macworld keynote address Jobs announced that the iPhone had a 19.5 percent share of the smart phone market in the same quarter (Carew, 2008). Consumer satisfaction with the iPhone has been significantly higher than its competitors, according to a 2008 ChangeWave survey. Additionally, the survey shows the iPhone is the top choice among those planning to buy a new phone in the next six months (2008). Despite the fears of a looming consumer-led economic recession, Apple executives still believe the goal of selling 10 million iPhones by the end of 2008 is attainable.




Data-driven innovation and its contribution to economic growth 1. For many businesses and governments across OECD and its Partner economies, techniques and technologies for processing and analysing large volumes of data, which are commonly known as "big data", are becoming an important resource that can lead to new knowledge, drive value creation, and foster new products, processes, and markets. This trend is further referred to as "data-driven innovation" (DDI). 2. DDI is a source of economic growth and development through two distinctive "channels":

1. The economic properties of data suggest that data is an infrastructural resource which in theory can be used by an unlimited number of users and for an unlimited number of purposes as an input to produce goods and services. The increasing returns to scale and scope, that the use of data generates, are at the origin of data-driven productivity growth realised by firms when data is used for e.g. the development of multi-sided markets, in which the collection of data on one side of the market enables the production of new goods and services on the other side(s) of the market (e.g. the use of data generated by social network services for advertisement purposes).

2. The value-creation mechanisms of data analytics, which include using data analytics to: Gain insights (knowledge creation): Data analytics are the technical means to extract insights– and the empowering tools to better understand, influence or control the data objects of these insights (e.g. natural phenomena, social systems, individuals).

For example, organisations increasingly rely on simulations and experiments not only to better understand the behaviour of individuals, but in order to better understand, assess, and optimize the possible impact of their actions on these individuals. autonomous machines and systems that are able to learn from data of previous situations and to autonomously make decisions based on the analysis of these data.

# 6. CONCLUTION

It is irrefutable to say that Apple Inc. is one of the most well-known companies to date. With a huge brand name and consumer base, Apple has been able to target multiple markets simultaneously. The Apple iPhone has successfully been able to satisfy the need for a portable, yet powerful device, that allows the user to access information quickly and efficiently. First, an environmental scan helped us see some upcoming opportunities and threats for Apple Inc., in terms of psychological and sociocultural influences, we can see that Apple products give target market for the iPhone and using a market-product grid and perceptual map, we can to ages 18-34. Along with Apple's brand name, its successful influence on its target market has led them to become the technology giant they are today.

Apple shows us a clear lesson on how design thinking and innovation can lead a company to reach greater heights. Apple has secured the leading position in the competitive market today, and have placed their customers at the heart of the process.

Design thinking engages the company to think critically and out of the box. Instead of just taking a problem and using machines to solve it, it allows companies to come up with different solutions and approaches.

If you are looking to upskill and would like to learn more about design thinking, take up an *online design thinking course* that will help you understand all the essential design thinking frameworks required for you to build a successful career in the field. Upskill today and power ahead your career. Looking to upskill or explore a new field without breaking the bank? Our free online courses are the perfect solution. Dive into the exciting realms of Cybersecurity, Management, Cloud Computing, IT, and Software, Artificial intelligence and acquire the knowledge that can set you apart. Whether you're a tech enthusiast, an aspiring entrepreneur, or simply curious about the digital landscape, our courses offer a flexible and accessible learning method.

The impact that sleep has on human health is undeniable. Recent advances in sensing technology, big data analytics and AI allow for truly ubiquitous and unobtrusive monitoring of sleep and circadian rhythms. However, challenges remain to realisation of the benefits of this monitoring for individuals, research and clinicans. Here, we introduced the Digital Sleep Framework, a framework outlining the steps required from the multi-modal acquisition of sleep-related data through to its clinical and commercial application and exploring all aspects of this chain. As the number and scope of sleep monitoring technologies continues to grow and the diversity of digital sleep solutions and applications continues to multiply, the need for careful, risk-based product validation has become increasingly important.

The heterogeneity of sensors used for the monitoring of sleep–wake cycles and circadian rhythms poses a unique set of challenges for modelling and interpretability. Hence, the identification and standardisation of robust, reproducible digital sleep biomarkers is of paramount importance. Modelling based on these signals must be as free as possible from conscious and unconscious bias and the development of algorithms must be transparent.

# 7. FUTURE SCOPE

1. For many businesses and governments across OECD and its Partner economies, techniques and technologies for processing and analyzing large volumes of data, which are commonly known as "big data", are becoming an important resource that can lead to new knowledge, drive value creation, and foster new products, processes, and markets. This trend is further referred to as "data-driven innovation" (DDI). 2. DDI is a source of economic growth and development through two distinctive "channels": 1. The economic properties of data suggest that data is an infrastructural resource which in theory can be used by an unlimited number of users and for an unlimited number of purposes as an input to produce goods and services. The increasing returns to scale and scope, that the use of data generates, are at the origin of data-driven productivity growth realised by firms when data is used for e.g. the development of multi-sided markets, in which the collection of data on one side of the market enables the production of new goods and services on the other side(s) of the market (e.g. the use of data generated by social network services for advertisement purposes)

2. The value-creation mechanisms of data analytics, which include using data analytics to: Gain insights (knowledge creation): Data analytics are the technical means to extract insights– and the empowering tools to better understand, influence or control the data objects of these insights (e.g. natural phenomena, social systems, individuals). For example, organisations increasingly rely on simulations and experiments not only to better understand the behaviour of individuals, but in order to better understand, assess, and optimize the possible impact of their actions on these individuals. Automate decision-making (decision automation): Data analytics (through machine learning– algorithms) empower autonomous machines and systems that are able to learn from data of previous situations and to autonomously make decisions based on the analysis of these data. These autonomous machines and systems are getting more and more powerful as they can perform an increasing number of tasks that required human intervention in the past. Google's driverless car is an illustrative example which is based on machine learning algorithms enriched by data that is collected from the sensors connected to the car and from services such as Google Maps and Google Street View.

3. However, there are serious risks to the inappropriate use of data and analytic which underline the need for high skills in data analysis and statistics as well as domain specific competences. These risks are more elevated when analytics are used for decision automation in dynamic environments, in which case the dynamics of the environments need to be properly understood as well. This challenges current trends in the "democratization" of data analytics, where data and analytics are expected to be used by everyone, while increasing the need for a culture of digital risk management across the data ecosystem.

4. Internet firms have been at the forefront in the development and use of techniques and technologies for processing and analysing large volumes of data. The business model of many of these firms heavily relies on the use of data and analytics which constitute a major source of the firms' huge productivity. Among the OECD top 250 ICT firms, Internet firms generated on average almost one million USD in revenues per employee in 2011 while the other top ICT firms generated on average between USD 500 000 (software firms) to USD 200000.

# 8. APPENDIX

## DASHBOARD 1

https://public.tableau.com/views/iRevolutionAData-drivenExplorationofAplesiphoneimpactinIndia_16977768819870/Dashboard1?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

## DASHBOARD 2

https://public.tableau.com/views/iRevolutionAData-drivenExplorationofAplesiphoneimpactinIndia_16977768819870/Dashboard2?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

## STORY 1

https://public.tableau.com/views/iRevolutionAData-drivenExplorationofAplesiphoneimpactinIndia_16977768819870/Story1?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

# VISUALIZATION

## VISUALIZATION 1

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## VISUALIZATION 2

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## VISUALIZATION 3

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## VISUALIZATION 4

https://public.tableau.com/views/iRevolutionAData-drivenExplorationofAplesiphoneimpactinIndia_16977768819870/BrandPriceComparison?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

## VISUALIZATION 5

https://public.tableau.com/views/iRevolutionAData-drivenExplorationofAplesiphoneimpactinIndia_16977768819870/Model-share?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

## VISUALIZATION 6

https://public.tableau.com/views/iRevolutionAData-drivenExplorationofAplesiphoneimpactinIndia_16977768819870/Countrywisebestsellingsmartphone?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

## VISUALIZATION 7

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## VISUALIZAION 8

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## VISUALIZATION 9

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## VISUALIZATION 10

https://public.tableau.com/views/iRevolutionAData-drivenExplorationofAplesiphoneimpactinIndia_16977768819870/GMS?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

## VIDEO DEMONSTRATION LINK

https://drive.google.com/file/d/14YIWGvEswpIVslGUUsOYv_nZHm-oDukl/view?usp=drivesdk