# Major New Trends in Last 4 Years

-An Investigation into Their Impact

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# Approval sheet

The project titled as "Major New Trends in Last 4 Years - An Investigation
into Their Impact" by Tushar Wankar is approved in partial fulfilment o
the requirement for the degree of 'Master of Design' in Industrial Design a
Industrial Design Centre, IIT Bombay.

Guide:

Chairman:

# **Declaration**

I declare that this written submission represents my ideas in my own words and where other's ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Name: Tushar Vijay Wankar

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Date:

# Acknowledgement

I express my deepest gratitude to my guide Prof. K. Munshi for his valuable guidance in the project. This project has been a great learning experience till now. His constant feedback and precious inputs made me explore the domain of trend analysis study and understand the fine points related to it thus enhancing my knowledge base. Last but not the least, I would also like to thank all my classmates for their moral support and constant feedback in the project.

# **Abstract**

The project aims to understand the trend or pattern followed by the people in India in motorcycle category in past 4 years. The new methodology of attributes based analysis is explored here with intention to find the common attributes in the present motorcycles.

The study involves the understanding of the projects done in IDC IIT Bombay on trends analysis followed by the pilot study of "Wrist watches" to get the clear idea of method and end results. Then actual research study starts with the understanding of the motorcycles market in India, thus finding the most seen attributes and then representation results through pie chart to trace pattern. The end results were compared with the top ten motorcycles in India and their results are analysed to find the difference.

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### 1. Introduction

#### 1.1. Trend

Oxford dictionary defines the meaning of trends as- 'A general direction in which something is developing or changing[1], It's a human tendency of mind or an attitude of mind especially one that favors one alternative over others. A trend simply reflects what seems to be going around at any given time. A trend can be in any area and doesn't only reflect fashion, pop culture and entertainment.

There can also be a trend in the stock market to be bullish or bearish, depending on economic indicators, or a political trend reflecting a nation's current mood. Some trends are fun, some fabulous, some appalling, but however long they last, you can be sure there will always be a new trend coming along to replace the old.

#### Types of trends

Evolutionary trend- a general direction of evolutionary change Gravitation- a figurative movement toward some attraction Neoteny -an evolutionary trend to be born earlier so that development is cut off at an earlier stage and juvenile characteristics are retained in adults of the species.

### 1.2. Trend Analysis

Trend Analysis is the Method/practice of collecting information and attempting to spot a pattern, or trend, in the information. In some fields of study in order to discover patterns [2]

Meaning of 'Trend Analysis'

- An aspect of technical analysis that tries to predict the future movement of a stock based or sale based on past data. Trend analysis is based on the idea that what has happened in the past gives traders an idea of what will happen in the future.

#### 1.3. Where do the trends come from?

- -Observation of new technologies.
- -Observation of industrial developments: transportation, electronics, sports, home equipment, food industry, etc.
- -Research regarding social and consumer behaviours (Lifestyles, demographics, politics, economics, environment).
- -Analysis of the public space such as bus stops, airports, cafes, etc.

#### 1.4. Trend Analysis in Project management

In project management trend analysis is a mathematical technique that uses historical results to predict future outcome. This is achieved by tracking variances in cost and schedule performance. In this context, it is a project management quality control tool

Statistics

In statistics, trend analysis often refers to techniques for extracting an underlying pattern of behaviour in a time series which would otherwise be partly or nearly completely hidden by noise. A simple description of these techniques is trend estimation, which can be undertaken within a formal regression analysis.

History

Today, trend analysis often refers to the science of studying changes in social patterns, including fashion, technology and consumer behaviour [3]







**Faucets** 

Coffee mug





Kettle

Light

Image 1: Lifestyle products [IR-2]

### 2. Case Studies

To understand and discover methodologies of trend research, various projects on trend analysis within IDC were studies. Book reading and web search were also conducted to understand how people do trend surveys and analysis. The insights and inferences were mentioned in following case studies.

### Case Study 1 - Study of Form Trends in Lifestyle Products by Mihir Sukhatme (Year-2009) Guide: Prof. Purba Joshi

The project deals with the trend mapping, showing the change in the design and the formal language of the lifestyle product in past 30 years.

#### Procedure followed-

- 1. First, a brief research on basic understanding of the lifestyle product was carried out, concluding lifestyle is the way person lives and the pattern he follows, (fashion, entertainment, social relation, consumption).
- 2. A list of attributers were made. The attributes were visual appeal, look of the product, uniqueness and commonness, feel of richness and culture, designer and artistic feel, and elements of surprise etc.
- 3. Lifestyle products selected for analysis kitchenware, bath fittings, artefacts and lightning system etc.
- 4. Analysis was carried on the basis of their form, aesthetic and visual appeal.
- Faucets were chosen for the final trend analysis.
- 6. Sample images of faucets (27 images) from 1980 to 2010 were collected and categorised into decade.
- 7. Images of lifestyle products of that period were also studied to understand their the design language and their influence on the faucets.
- 8. The form language of the faucets was analysed for each decade and based on the understanding, the inference about the changing form trend was drawn.

Year (decades)	1981-1990	1991-2000	2001-2010
Lifestyle Products from the decades			
Faucets (from the same decades)			
Conclusion n the basis of form language	Smooth Curvy Flow of form	Flat faces or surfaces Tall Slender Sleek	Organic Compact Easy to operate
			1

Table 2.1 Inference of trend study in faucets forms [IR-3]

#### **Inference:**

The methodology used for the trend analysis is a qualitative method which helps to understand the visual perception of the people about the product. The study purely based on what kind of form, shape, colour was liked by the people during those decades.

# Case study 2 -Trends in auto colour by Vishal B. Patil

(2005) Guide: Prof. Ravi Hazra

In this project the colour trend in automotive industry is studied and tried to find out segment wise pattern in car colours. The tools used for study is image mapping and trend survey.

Methods used to understand trends are

- 1. Literature survey to understand colour and its relationship with car and human mood.
- 2. Image mapping- collection of images from web and photography.
- 3. Study of most sold colour with the same car model.
- 4. Discussion with the Hero-Honda motor corp.
- 5. Interview with the designer.

The inference derived from the literature study is that every colour has its meaning and expression. For example, black is dark and compact. It gives an impression of distinction, nobility and elegance, especially when it is shiny. Mostly seen on all cars. Whereas the White suggests purity, infinity, silence.

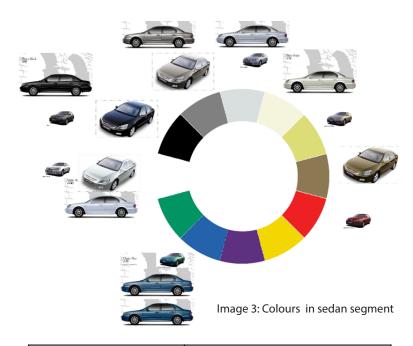
# Hatchback segment:



Attributes	Colours
Fresh Vibrant Young Small Economy.	equal distribution of range around above colour wheel.

Table 2.2 Colour trends in hatchback car segment

# Luxury sedan segment:



Attributes	Colours relative to attributes
Prosperity authority Maturity hi tech	Gold silver, black and white.
silence	1

Table 2.3 Colour trends in luxury car segment

# Sports utility vehicle segment:

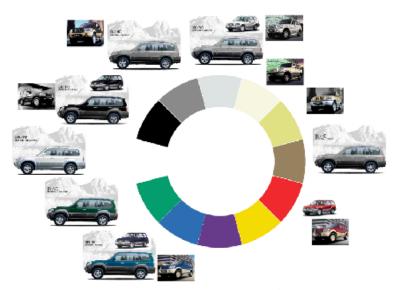


Image 4: Colours in SUV segment

Attributes	Colours
Adventure Robust Sports Active Solid Young Protective	two tone shades are common

Table 2.4 Colour trends in sedan car segment



Image 5. Bike before and after colour change (Data is derived based on the survey insights such as bold graphics, speedier looks, dual tone etc.)

An inference derived from discussion at Hero-Honda motors- they follow the standard design Procedure and also try to understand what user wants, their perception about the vehicle, their dreams etc. Based on these surveys insights they generates image map and do necessary changes.



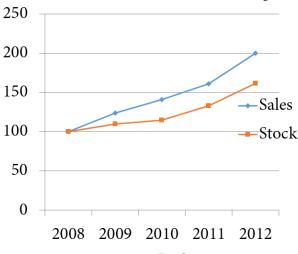


Image 6: Designer worked on vehicle shown above (Renault Twingo)

An interview with the designer gives insights about the colour selection. A different themes are chosen according to brief from car designer. (eg. Movement, harmony), then according to theme image map is created. From which different shades are chosen. and after much iteration final shades are chosen.

Year	Sales		Sales Stock		ock
	Amt.	%	Amt.	%	
2008	1881	100	709	100	
2009	2340	124	781	110	
2010	2655	141	816	115	
2011	3021	161	944	133	
2012	3762	200	1154	162	

Table 2.2 Yearwise growth



Graph 2.1 Yearwise growth

### Case Study-3. Book Ref. - Monetary Growth

- Trends, Impacts and Policies by William N. Squires & Charles P. Burdock

In this book the methods of statistical Trend Identification are mentioned.

#### It follows as -

- 1. One year is taken as a base year. Generally, the first or the last year is taken as base year. ( here it is 2008 in the table 1.1)
- 2. The % figures of base year are taken as 100.
- 3. Trend percentage are calculated in relation to base year.
- 4. If a figure in other year is less than the figure in base year the trend percentage will be less than 100 and it will be more than 100 if figure is more than base year. (ex. amount in 2009 is 2340, which is more than 1881 of 2008. therefore % increase is 24%)
- 5. Each year's figure is divided by base year's figure.

  =Current Year's figure \* 100 / Base Year's figure

### Interpretation

- 1. The sales have continuously increased in all years up to 2012. The figures of stock have also increased from 2008 to 2012. In five years period it has more than doubled.
- 2. The percentage in 2012 is 200 as compared to 100 in 2008.
- 3. The comparative increase in profits is much higher in 2011 and 2012 as compared to 2010.
- 4. Trend of sales is continuously increasing

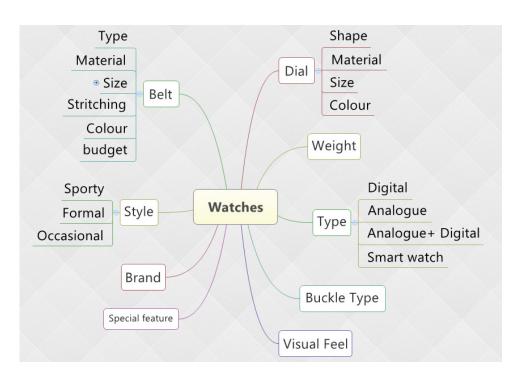


Image 7 - Mind map of attributes for trend analysis of watches

# 3. Pilot study - Trend Analysis of Watches

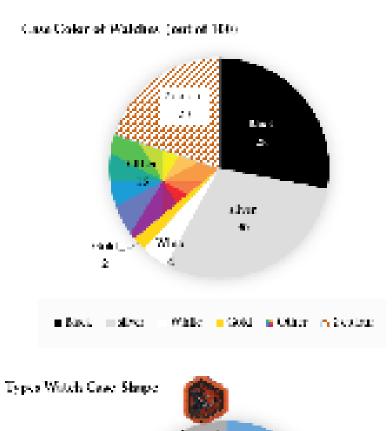
### Area selected on the basis of personal interest -Wrist Watches for Men

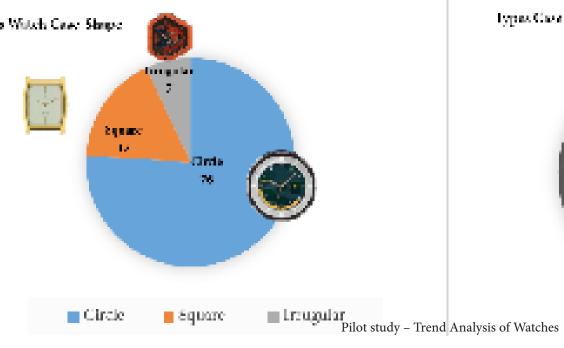
Procedure followed for the trend analysis of the watches:

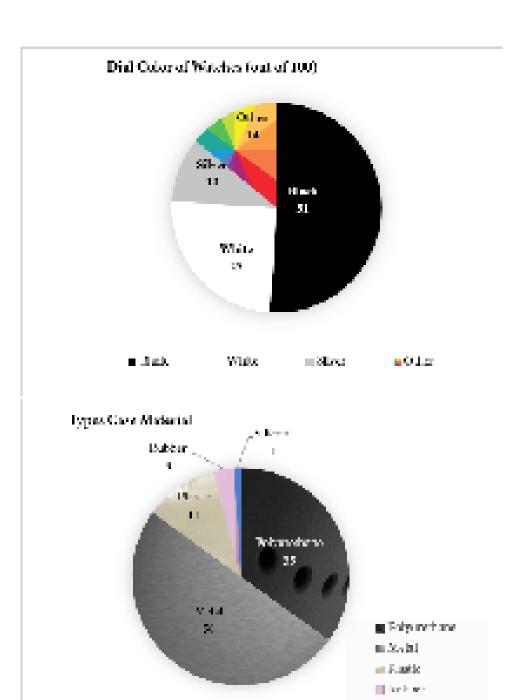
- 1. No. of watches selected for study = 100
  All watch samples are taken from online shopping site "flipkart.Com".
  All selected watches are for men
- 2. Selection criteria
  - -Most popular
  - -Most review by the users
  - -Highest rating by the users
- 3. Attributes were made for trend analysis are shown in figure1
- 4. All the attributes were listed in a excel sheet and each watch were evaluated on the basis of these attributes
- 5. Final numbers were counted and illustrated in Pie-charts.



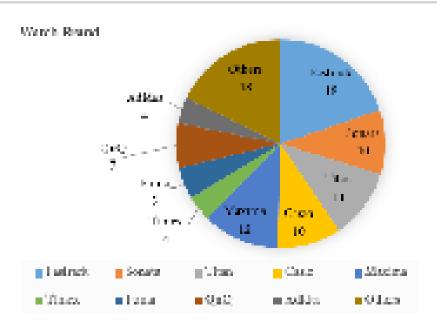
Table 3.1 Top 7 watches in all categories



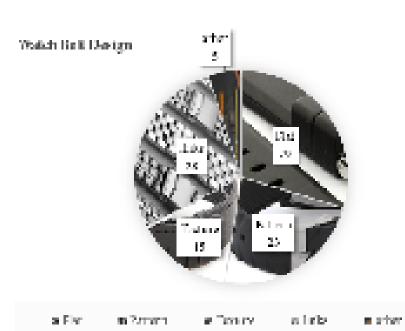




Silicon



The worth Transk having learning, as of earth age.

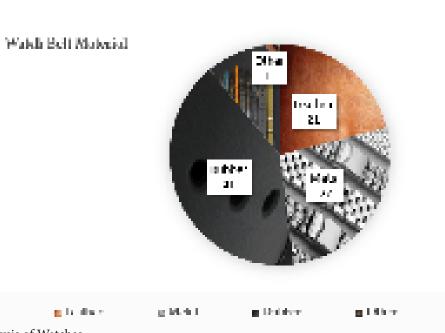


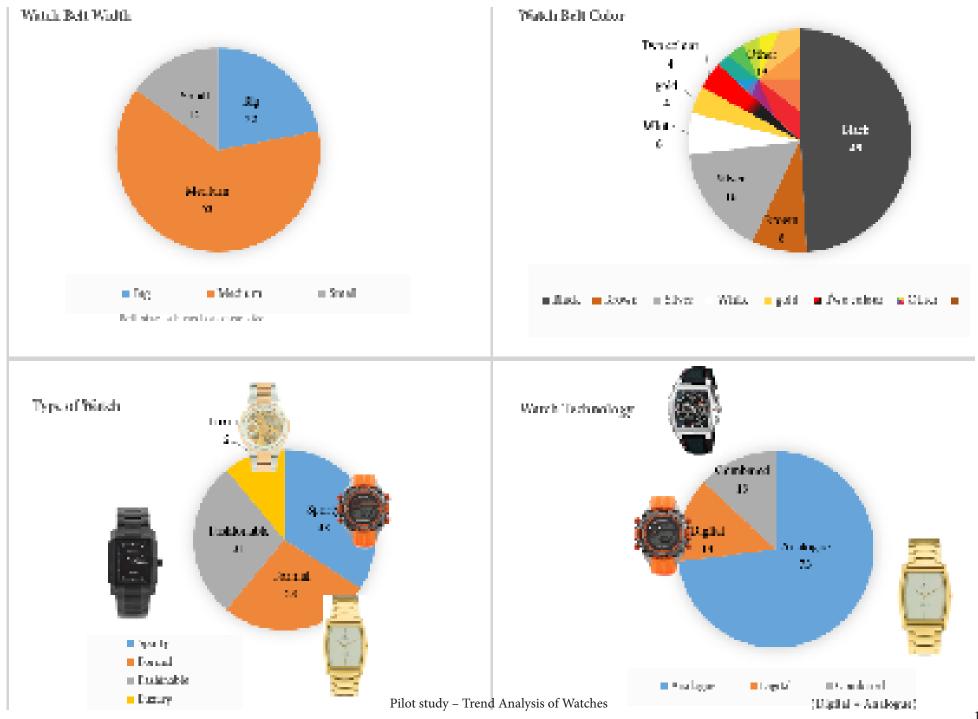
Watch Case Size: 900 Medium 49. 45 ■ Small Tip to commit Make In the State of the Inc.

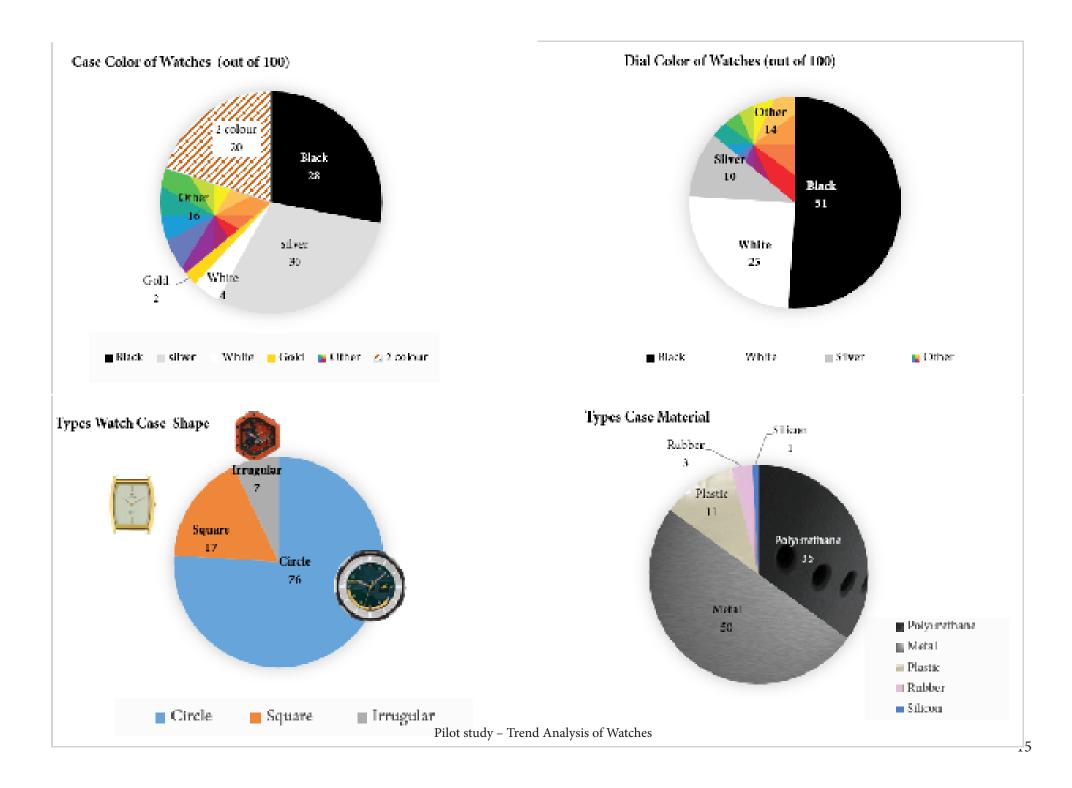
Above to min-

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Most liked in watches (for men)

Case Case colour- silver (30)

Dial colour - Black (51)

Case Shape -Circle (76)

Case Material – Metal (50)

Case Size –Big (49)

Watch belt Belt Design – Flat (29)

Belt Material –Rubber (41)

Belt width – Medium (63)

Belt Colour – Black (49)

Belts with stitching = 26

Type of watch - Sporty(38)

Technology - Analogue (73)

Brand – Fastrack (19)

Weight of watch – Medium (49)

Features – No special Feature (61)

Watches with date option = 24

(analogue only)

Watches with date option = 52

(Analogue and Digital)



The watch from Fastrack which satisfy all the Attributes

- Most popular rank 18th /100
- Most review by the users rank 45th /100
- Highest rating by the users- 38th /100



Watches which satisfy some attributes not all are the top rated, most reviewed and popular.

It is not necessary that combination of all the top rated attributes will give best watch. The watches which are top rated are have some of the attributres.

Hence For user it is the priority of the attributes which he definitely wants in a watch, on that he decides the best suitable watch.

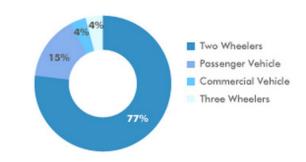
# 5 Methodology for final trend analysis

Attributes based analysis Comparison with top rated motorbikes in India Understanding user's selection methodology Conclusion

# 6. Attributes Based Analysis



Process for attributes based analysis



Types of Vehicles used in India [5]
Source: http://www.ibef.org/industry/india-automobiles.aspx

### 5.1 Automotive- segment selection for trend analysis

Automotive industry is a very vast field, it has different types of vehicles for different purposes. Trend analysis of automotive as a whole will not give feasible results because of its different types, segments and variations. To get the meaningful results one segment of automobile industry "Two Wheeler" is selected for the trend analysis.

India is the second largest producer of two wheeler in the world. Majority of Indians specially youngsters prefers motorbike over car.

Within two wheeler there is a segmentation Motorcycles-78% Mopeds-17% Scooters-5%

Motorcycles Category is Selected for Trend Analysis bases on

### 5.2. Two-wheeler companies In India (Motorcycles)

Models Available with these brands [6] [7] [8] [9] [10] [11] [12] [13]



- 1. HF Dawn
- 2. HF Dulux
- 3. Splendor pro
- 4. Splendor I Smart
- 5. Super Splendor
- 6. Splendor Pro classic
- 7. Passion Pro
- 8. Passion X-Pro
- 9. passion pro TR
- 10. Glamour
- 11. CBZ Xtreme
- 12. Hunk
- 13. Ignitor
- 14. Impulse
- 15. Karizma
- 16. Karizma R
- 17. Karizma ZMR



- 1. Platina 100
- 2. Pulsar135
- 3. Pulsar 150
- 4. Pulsar 180
- 5. Pulsar 220
- 6. Pulsar 200 NS 7. Discover 150
- 8. Discover 125
- 9. Discover 100

- HOND
- 1. CD 110 Dream
- 2. Dream Yuga
- 3. CB Twister
- 4. CB shine
- 5. CBF Stunner
- 6. CB Unicorn
- 7. CB Trigger
- 8. CBR 150R
  - 9. CBR 250R



- 1. Apache RTR
- 2. Apache3. Phoenix
- 3. Phoenix
- 4. Star city 5. max 4R



- 1. Gixxer
- Hayate
   Gs150R
- 4. Sling shot



- 1. Crux
- 2. YBR 110
- 3. Ybr 125
- 4. SZ RR
- 5. FZ 6. Fazer
- 7. R15



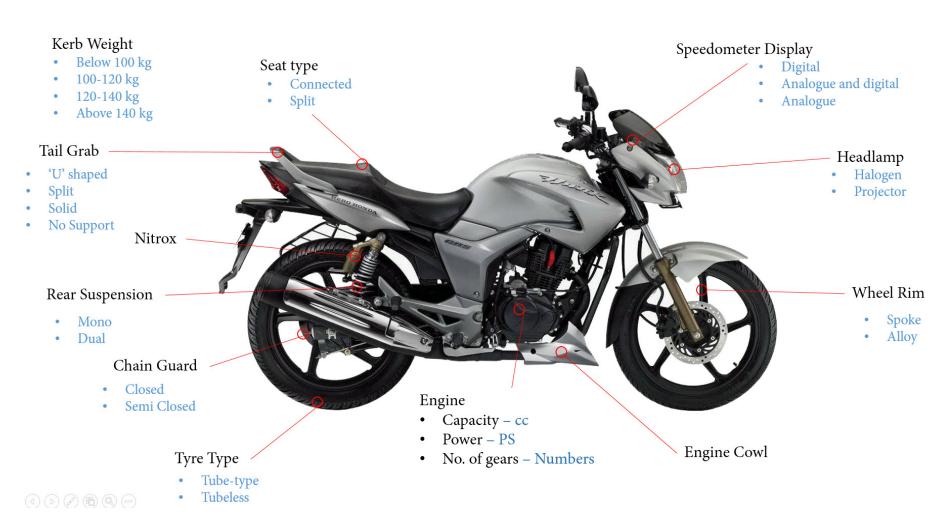
- 1. Duke 200
- 2. Duke 390
- 3. RC200
- 4. RC 390



- 1. Ninja 250
- 2. Ninja 300

Analysis is carried out for these 57 Motorcycles which were available in Indian market during the period of Jan 2011- Dec 2014

### **5.3 Attributes Generation**





# Approach for data collection

For trend analysis the specifications are taken from respective brand websites, however some of the performance data mentioned is as per their test conditions and not comparable with the other brands.

In order to compare performance of bikes of different brands, 'Overdrive' [14][15] auto publication website is taken into consideration.

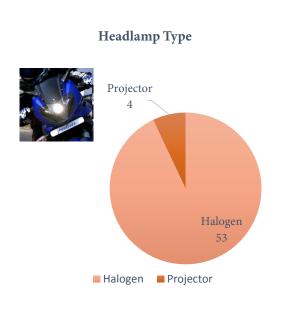
Overdrive is India's No.1 Auto Publication for Cars and Bikes in India - the most comprehensive source of Auto News, Prices, Reviews, Road Tests and Comparisons.

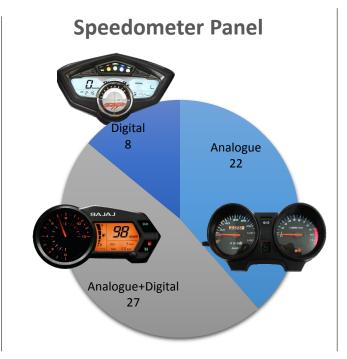
Following attributes are taken from overdrive publication

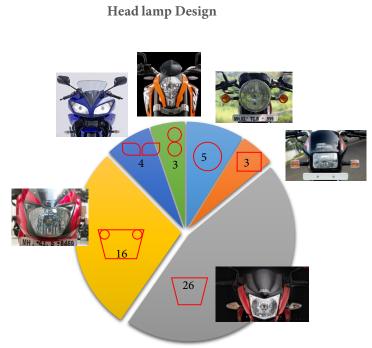
- 1. Engine capacity
- 2. Engine power
- 3. Top Speed
- 4. Economy in kmpl
- 5. o-60 kmph in sec
- 6. Ex-showroom price (taken from Delhi)
- 7. User Reviews

All the vehicles are evaluated in the basis of attributes listed above and and compiled in the excel sheet (Appendix 1) the final data is represented in pie charts.

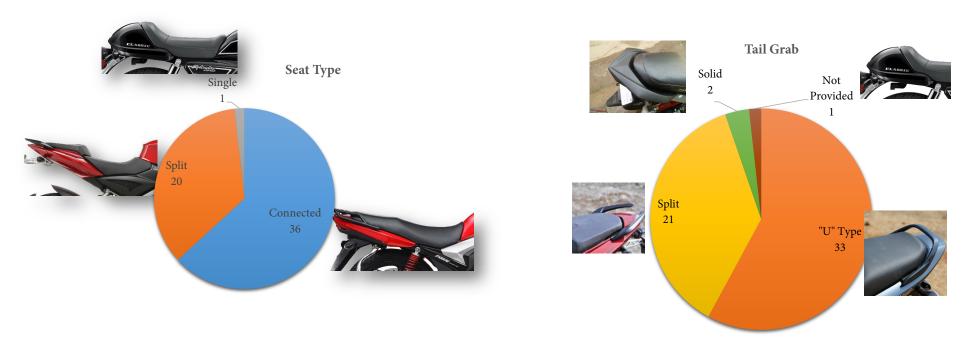
#### **Category -1 Features**



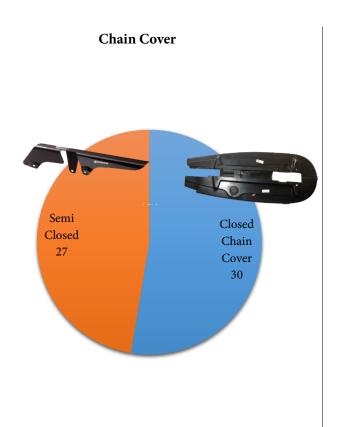


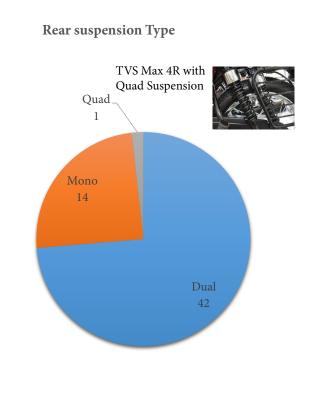


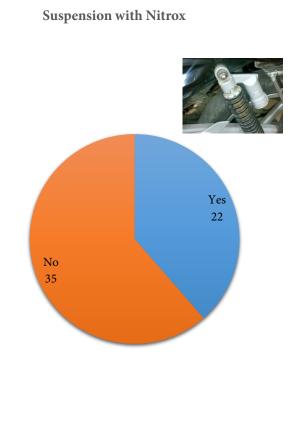
An 'Inverted Trapezoidal' shaped headlamp with a 'halogen bulb' and 'combined speedometer' (analogue + digital) are common pattern. `

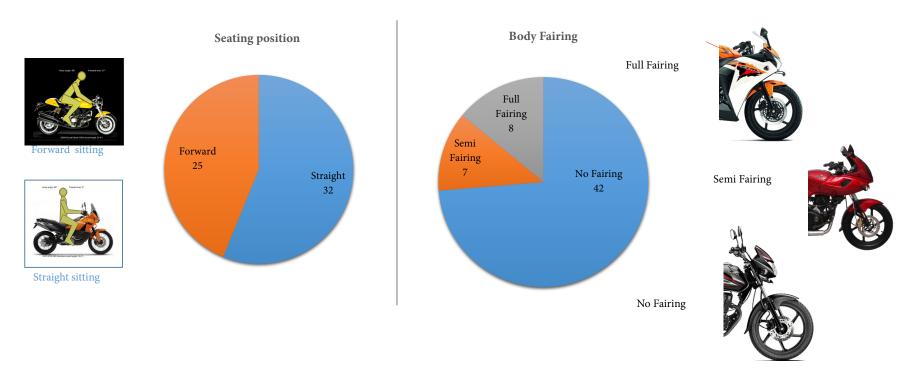


• A 'connected' type of seat with a 'U' shaped Tail grab is seen in 33 out of 57 Motorcycle

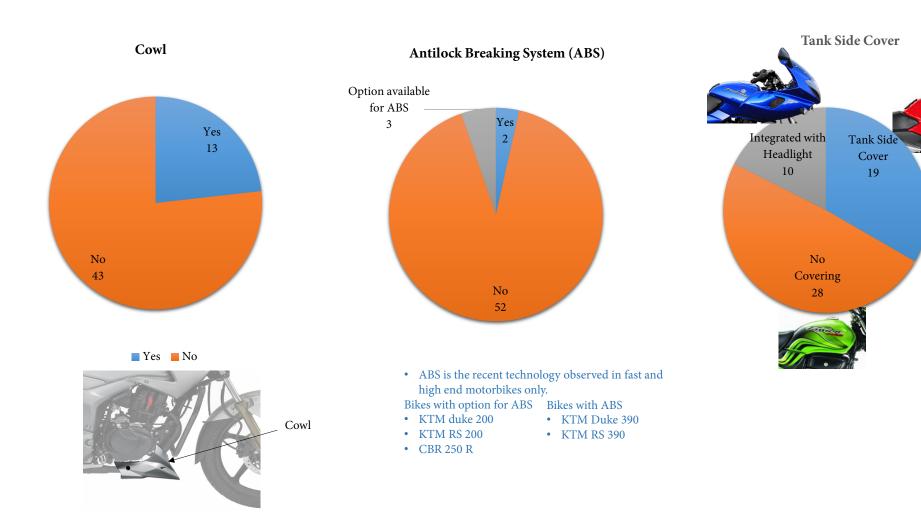


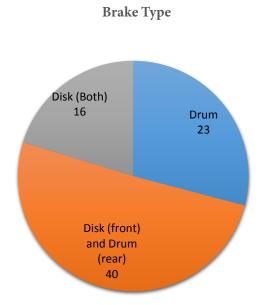


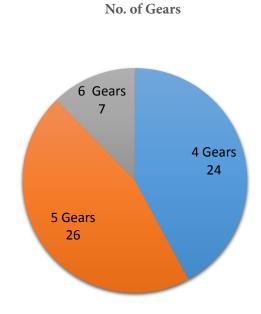


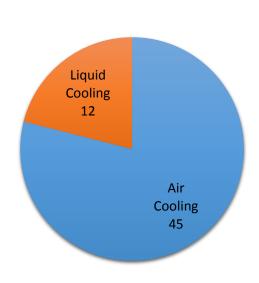


• Straight seating position (32 out of 57) and without fairing is observed in 42 out of 57 motorcycles in India.





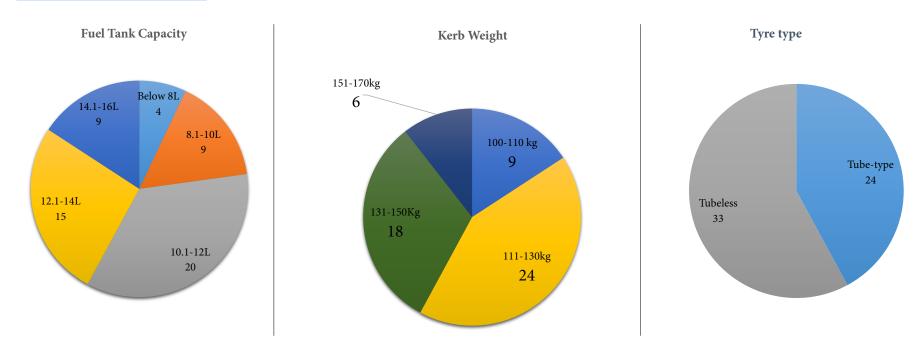




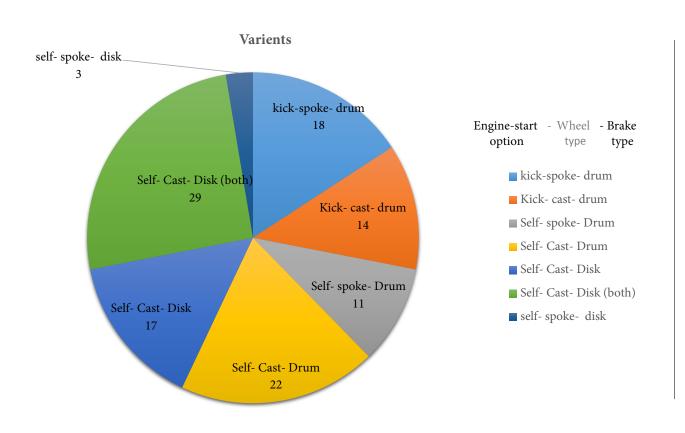
**Type of Engine Cooling** 

- There are variations available within the same model. Based on type of brakes Total no of vehicles with variations = 78
- Out of 78 variants of 57 motorcycles, 40 are with both disk and drum type of brakes

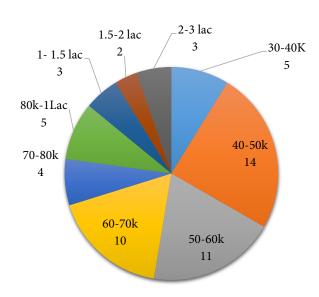
#### **Category - 2 Dimensions**



Tubeless types are overtaken the traditional tube-type tyre found in 33 out of 57 motorcycles.



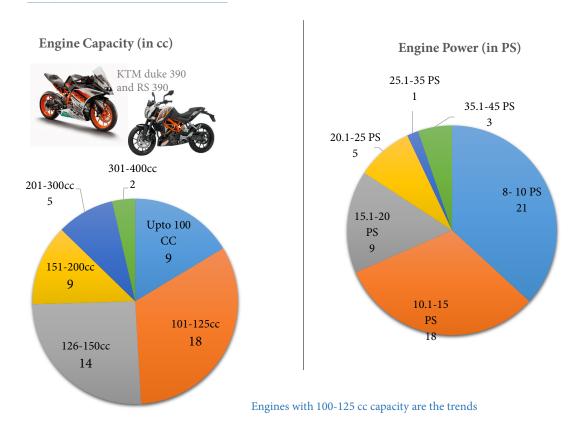




One motorcycle comes in many variants based on the type of brakes, wheel rim and engine Start options.

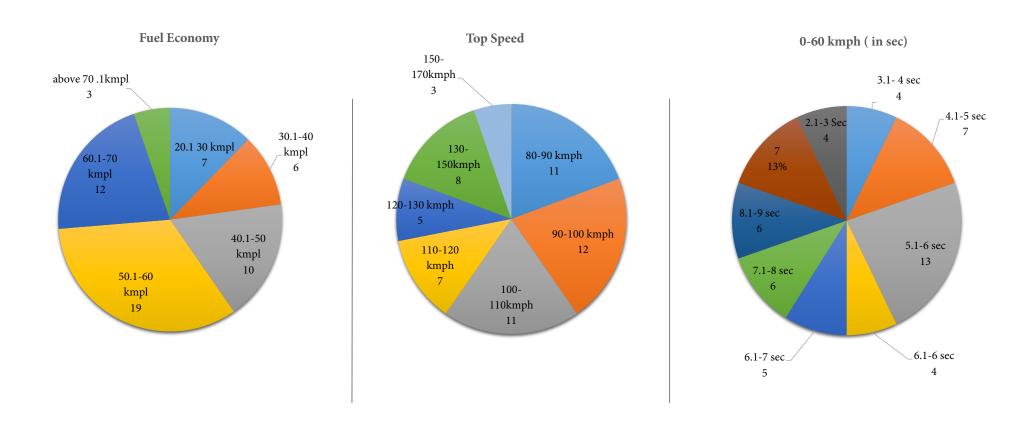
Number of vehicle calculated based on the variants = 114 vehicles 'Self start – cast wheels - disc brakes' variant is found in 29 vehicles out of 114.

### Category -3 **Performance**



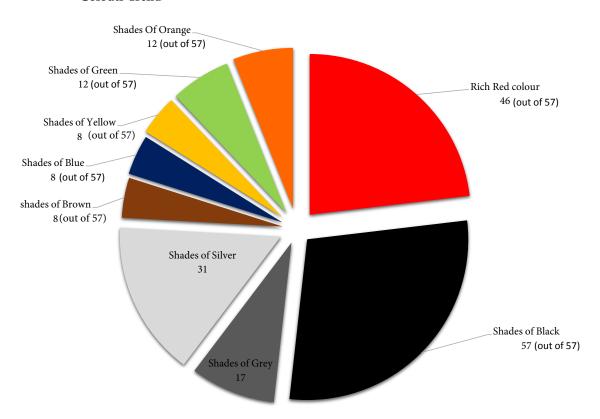


Trend Analysis of Automobiles – Analysis Result of 57 Motorcycles



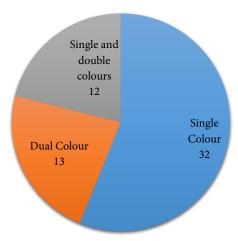
### **Category 4 - Colours**

### **Coloutr Trend**

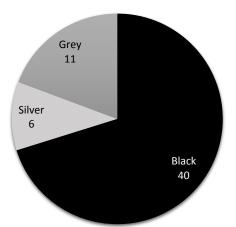


The each segment represents the number of vehicle having that colour out of 57

## Colour Range available in Models



**Engine Colour** 



40 black coloured engines were found out of 57 motorcycles



Body Colour-Signe colour Price Range- 40k - 50k

Body Colour - Red Black





Speedometer Display Analogue and digital



Headlamp-Halogen

Headlamp Design-Inverted Trapezoidal



Seat type-Connected



- 10-12L



Fairing- open



- Capacity- 101-125cc
- Power- 8-10PS
- Torque- 10-15N-m
- 0-60kmph- 5.1-6 sec
- Top Speed- 90-100kmph
- Economy- 50-60Kmpl (in city)



Wheel Rim -Alloy

Tyre Type -Tubeless



No. of Gears -5

Engine Colour- Black

Cooling System- Air cooling



Engine Cowl – not found in most of the vehicle

Number of attributes listed = 30

There Are no bikes which satisfy all 30 attributes

Bike which satisfied at least 20 out of 30 attributes are listed below







Hero Passion Pro



Baja Discover 125



Honda CB Shine



# 6. Comparison with top rated motorcycles

Following are the top 10 MOST SELLING motorcycles in India in last 4 years [16] [17] [18]

They are ranked as mentioned below



When motorcycles from atributes based analysis are compared with top rated motorcycles in India, following results were found.
4 out of 5 motorcycle (of attributes based analysis) are common in top 10.
Motorbikes in red squares represents these common motorcycles



Motorcycle shown in red box is one which is NOT in top 10 most selling but in top rated attributes list.







Hero passion pro

Bajaj Discover 125









Hero passion pro

To understand why this bike is not in the top 10 best selling bikes in India, Users review were studied.

Total 18 reviews were analysed from the two different websites [19] [20]. some examples are mentioned below.

The inferences derived from review are as follows:

- 1. Discomfort due to bad performance of the suspension.
- 2. Quality of the parts is not good (Brakes liner wear out easily).
- 3. Performance falls down after a certain (5-6 months) period of time.
- 4. Ride quality is not up-to the mark.

These are the some main reasons why people don't find this bike good. Hence the expert advice about the handling and self experience of driving plus comfort matters for the selection of the bikes.



I got my HERO HONDA SPLENDOR in June 2001 when I completed my graduation in Kerala, Thrissur. Till date it has completed 143400 kms. Truly making it a reliable 12 year journey with my bike.

I was very careful specially regarding fuel efficiency and till date I have been able to get 73-74 km/ liter. I am not boasting, but its true.

http://www.mouthshut.com/review/Hero-Honda-Splendor-review-llrspslpur

Fuel Consumption (kms/litre): Comfort: Handling and Control: Handling and Control: Handling and Control: Comfort: Comfor

Honda shine is a best & best ever.first of all my mileage is 68 km per litre.Feeling awesome & proud of myself for got a best thing.If u go 40-50 km economical speed may be u get 70 km per litre.trust me & try it.lovely stylish look & smooth ride.tottally superb bike.

http://www.mouthshut.com/bikes/Hero-Honda-Splendor-reviews-925000056

Fuel Consumption (kms/litre): Comfort: Handling and Control: Handling and Control:

My brother bought s Hero Splender 1 month ago. It is awesome bike than any other two wheeler 100 cc segment. At speed of 40 - 45, I got 85 km/ltr millage. It is not a problematic bike.

It is handy, good pick up <u>suspension</u>. Parts are reliable, you never need to replace except brake liner.

http://www.mouthshut.com/bikes/Hero-Honda-Splendor-reviews-925000056

# 7. Understanding user's selection methodology

In order to understand the users priorities for the selection of the motorcycle, user's reviews were studied focusing towards what attributes they used more often for selection process

20 reviews were studied from 5 different websites to understand what keywords people generally use while buying Motorcycles. [20] [21] [22] [23] [24] [25] Some examples mentioned here...

Honda shine is a best & best ever.first of all my mileage is 68 km per litre.Feeling awesome & proud of myself for got a best thing.lf u go 40-50 km economical speed may be u get 70 km per litre.trust me & try it.lovely stylish look & smooth ride.tottally superb bike.

#### The Best 125 cc Bike

By: suriyanarayanan987 | Sep 16, 2014 03:37 PM

I have driven Honda Shine for almost 2 years. The thing which I feel most unique with this bike is the almost zero engine noise and smooth transmission. Its a

125 cc bike, so please don't expect it to fly above 120 kmph. It looks stylish and sporty and the seats are very comfortable for 2 people. One thing which like very much about this bike is the suspension system. Let there be any number of bumps on the city road, Shine will excel. Talking about the mileage, it gives 50+ for sure in city traffic! Overall its a very good buy!

Pros looks ok

Cons milage 41 worst i have seen

even a 220 cc bike gives 42 to 45 but my shine is giving 42 milage i complained to company vvvpoor response they did some service but no use worst exp

http://www.gaadi.com/bikes/model-Reviews-Honda\_Shine

The top 7 keywords mostly used by the users are:

- 1. Engine capacity in cc
- 2. Price
- 3. Economy
- 4. Brand of the vehicle
- 5. Variant available brakes-wheels-engine start option
- Performance (Acceleration + power)
- 7. Colour of the bike

These 7 attributes are used to find out motorcycles in the analysis chart. motorcycles which satisfied these 7 attributes are as follows-



Hero passion X-pro



Hero passion Pro



Bajaj discover 125



TVS star City



Honda dream yuga



Honda CB shine



Yamaha YBR 125



Suzuki Sling shot

# 8. Conclusion

The results obtained in the attributes based analysis are the pattern trend followed by the users in India.

It is not necessary that combination of all the top rated attributes will give best motorbike. For user it is the priority of the attributes which he definitely wants in a motorcycle decides the best suitable bike for him.

In the motorcycle selection process apart from the visual attributes and performance parameters, the actual riding experience and reviews by the professional's personals also matters.

Attributes based analysis method can be used to trace pattern for the future motorcycles, this will help automotive manufacturer and market analyst personals to understand the pattern followed by the users.

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9.3 AppendixExcel sheet of data compilation