A REPORT ON ORGANISATION STUDY ON ATHER ENERGY.

BY

PUNEETH A

(1CR19MBA66)

Submitted To

Visvesvaraya Technological University, Belagavi

In partial fulfilment of the requirement for the award of the degree of

MASTER OF BUSINESS ADMINISTRATION

Under the Guidance Of

MS. Preksha yadav

Assistant Professor

Department OF Management Studies

CMR Institute of Technology

Bengaluru – 560037.

Department of Management and Research Centre,

CMR Institute of Technology, #132 AECS Layout, IT Park Road, Bengaluru – 560037.

BATCH OF 2019 - 2021

DECLARATION

I, hereby declare that the internship project at **Ather Energy** submitted in partial fulfilment of the requirement for the award of the degree of Master of Business Administration is my original work under the guidance and supervision of **M S Preksha yadav** Assistant Professor, CMR Institute of Technology.

This internship project report has not been submitted to any other university for the award of anyother degree or diploma or any other similartitles.

Place:Bengaluru **PUNEETH A**

Date: **1CR19MBA66**

ACKNOWLEDGEMENT

I take this opportunity to convey my sincere thanks to **Dr. Sanjay Jain,** Principal. The CMR Institute of Technology.

I am really very grateful **Prof. Sandeep Kumar,** HOD. Master of Business Administration, The CMR Institute of Technology for his valuable suggestion to complete the project successfully.

I am really very grateful to convey thanks to my guide **M S Preksha yadav,** Asst. professor. Department Master of Business Administration, The CMR Institute of Technology for her motivation and valuable suggestion to complete my project work.

I would like to once again thank my Principal, HOD, Guide, Parents, Friends and well-wishers for supporting and guiding me throughout my project to complete my InternshipReport.

Place:Bengaluru **PUNEETHA**

Date: **1CR19MBA66**

CELEBRATING 25 YEARS
CMRIT
CMR INSTITUTE OF TECHNOLOGY, BENGALURU.
ACCREDITED WITH A+ GRADE BY NAAC

103630

No. 132, AECS Layout
IT Park Road
Bengaluru 560037
T : +91 80 2852 4401/477
F : +91 80 2852 4630
E : info@cmrit.ac.in
www.cmrit.ac.in

CERTIFICATE BY THE INSTITUTION

This is to certify that **Mr. PUNEETH A** bearing **USN 1CR19MBA66** is a bonafide student of Master of Business Administration of our Institution during 2019-21 batch. The organization study report on **ATHER ENERGY** is prepared by him under the guidance of **Mrs. Preksha Yadav,** Assistant Professor, in partial fulfillment of the requirements for the award of the degree of Master of Business Administration, affiliated to Visvesvaraya Technological University, Belagavi Karnataka.

Signature of the Guide	Signature of the HOD	Signature of the Principal
	Head of the Department Department of MBA CMRIT-PG Studies Bangalore-560 037	Sanjay Jain Principal CMR Institute of Technology Bangalore - 560037

Viva-voce Examination:

Internal Examiner: _____ 30-09-20
[Signature & Date]

Prekshaa Yeledav, AP, CMRIT
[Name, Designation & Affiliation]

External Examiner: _____ 30/9/2020
[Signature & Date]

Pavithra RC, AP, CMRIT
[Name, Designation & Affiliation]

TABLE OF CONTENT

EXECUTIVE SUMMARY

Ather Energy has built India's first intelligent electric scooter. We manufacture two scooter models at present - 450 and 450X. We have also established an electric vehicle charging network called Ather Grid.

The company is based in Bangalore and was founded in 2013 by Tarun Mehta and Swapnil Jain. Our manufacturing facility is set up in Whitefield. We own and operate our own experience centers (called AtherSpace) to give our customers a complete ownership experience. We've recently launched the Ather 450X, which is set to hit 10 cities across India by the end of 2020.

The goal is to gather preliminary data and to reach the real nature of the problem and to suggest new ideas, Descriptive Research is taken up. Here survey was done by using structured questions.

The source of our data is primary data and secondary data. Primary data was collected from the respondents, who were interviewed there, for the first hand frequencies was the basis on which analysis was carried out. While the secondary data regarding subject was obtained from various magazines, journals, web sites, newspapers, and books

.For analyzing and interpreting the data we have used various statistical tools like SPSS 17,Ms Excel 2007 and Ms Word 2007. The test that was applied to interpret the statistical data collected through questionnaire was chi-square

The study has covered up the Industry profile, Organizational profile Background, Nature of business, Vision, Mission, Quality Policy, Product Profile, Ownership Pattern Achievements, Future Growth and Prospects, Mc Kinsey 7s framework, SWOT Analysis, Analysis of Financial Statement, Learning Experience, Bibliography and Annexure.

CHAPTER 1

INTRODUCTION ABOUT INTERNSHIP DETAILS

Ather Energy was founded in 2013 by Tarun Mehta and Swapnil Jain. In early 2014, it received ₹4.5 million (US$63,000) from the Technology Development Board under Department of Science and Technology, IIT Madras and Srini V Srinivasan, IIT alumnus and founder of Aerospike. In December 2014, Flipkart founders, Sachin Bansal and Binny Bansal invested $1 million as the seed capital. Sachin Bansal and Binny Bansal expressed a positive sentiment towards the company and showed inclination towards energy-efficient vehicles. In May 2015, it received $12 million from Tiger Global for investments in development, testing, production and the launch of the vehicle.

On 23 February 2016, the company unveiled its smart scooter S340 at a technology conference Surge in Bangalore. Hero MotoCorp invested ₹205 crore (US$29 million) in the Series B round of funding in October 2016 and gained a 32.31% stake in the company. It invested again in 2018 to the tune of ₹130 crores (US$18 million).

In May 2019 Ather Energy raised an investment of $51 million in its latest round of funding, led by Sachin Bansal's investment of $32 million. Ather Energy was one of the earliest start-up investments of Sachin Bansal when he invested $0.5 million in the firm as an Angel investor in 2014. Hero MotoCorp has converted its Convertible Debt of $19 million as a part of this round. In addition to this, InnoVen Capital has extended an $8 million venture debt.

In December 2019, Ather Energy signed a MoU with Government of Tamil Nadu to set up a 400,000 sq ft (37,000 m2) manufacturing plant for electrical vehicles in Hosur. The invested amount will be around ₹635 crores (US$89 million)

The company added two new products to its portfolio, the Ather 450X & the Ather 450 Plus in January 2020. The Ather 450X is a premium electric scooter built from ground up by Ather. A step above the Ather 450 both in features and performance, the Ather 450X has been meticulously designed to redefine the two-wheeler riding experience in India.

Ather Energy raised a fresh round of funds from Hero MotoCorp, in July 2020 as a part of its Series C round. The $11.4 million will be used by the company to aggressively expand its presence and scale to 20 cities by the end of 2021.

The automobile industry is in the midst of a huge technological disruption. Today, electric is the preferred choice because of its inherent efficiency that will shape urban commute and the cities of tomorrow. In parallel, the world around us is getting connected, enabling integration of devices and making our life experiences seamless. Intelligent vehicles will revolutionize our commute experience in the future and the Ather 450 stands at the cusp of this exciting reality.

Objective of the Study:

1. To know about the demands of AtherEnergy.
2. To know the sale of Ather Energy in Bangaloredistrict.
3. To know the popularity and brand image of AtherEnergy.
4. To know the quality and preference of AtherEnergy.
5. To know the existing problems with theproduct.
6. To present the suggestion, finding to AtherEnergy.

ATHER ENERGY :

ATHER 450

The Ather 450 is constructed using an all-aluminum frame, comes with a 5.4 kW (7.2 BHP) Brushless DC electric motor, and a 2.4 kWh lithium-ion battery pack. The scooter can accelerate to 40 km/h in 3.9 seconds, attain a top speed of 80 km/h, and can travel 75 km on one charge in city-riding conditions (107 km in the Indian driving cycle).

The scooter features a 7-inch touchscreen dashboard, and comes with features like on-board navigation, diagnostics, all-LED lighting, auto-cancelling indicators, smartphone integration, and cloud connectivity to send and receive data from Ather's servers.

ATHER GRID

Ather has set up its own charging network, dubbed Ather Grid, in Bangalore & Chennai. These DC-fast-charging stations use Ather's proprietary charging method and connector to charge the Ather scooters at a rate of 1 km/min. The charging points are also equipped with a 3-pin socket to supply AC power to other electric vehicles that do not use Ather's connector. Other vehicle can connect to the charging point and start charging using the Ather Grid app for iOS andAndroid.

Ather has plans to set up around 60 points in Bangalore & Chennai, and set up more Ather Grid in other cities as it expands. Ather also sets up a home charging point at customer's homes which will charge the Ather 450 of 80% *including four MTPA capacity which is under commissioning.

ATHER SPACE

Unlike most auto manufacturers in India, Ather Energy owns and operates its own Experience Centers. The company claims that this helps in maintaining end-to-end customer experience. The Experience Centers, dubbed AtherSpace, are aimed at increasing product understanding, providing customer education, and giving a first-hand experience of the product to consumers.

Test rides are also provided at the Experience Centers and can be pre-booked on the company's website. Experience Centers have components of the scooter displayed with useful information provided alongside each of them. There is also a fully built naked scooter on display to show the chassis of thescooter.

Ather currently has two Experience centers in India - One at 100-ft road Indiranagar, Bangalore and another one at Nungambakkam, Chennai.

.

CHAPTER 2

BACKGROUND :

Ather Energy Pvt. Ather Energy Pvt. Ltd. designs, manufactures, and markets smart electric Ltd. designs, manufactures, and markets smart electric scooters and charging scooters and charging infrastructure. Ather is headquartered in Bengaluru, India. infrastructure. Ather is headquartered in Bengaluru, India. India's electric scooter market is still in India's electric scooter market is still in its infancy. However, as pollution levels in cities infancy.

However, as pollution levels in cities rise, recently rise, Recently India's government India's government is starting to push the rating to push the use of e-scooters. But the biggest problem is that vehicles which run on electricity are not as use of e-scooters. But the biggest problem is that vehicles which run on electricity are not as powerful as that on petrol. Ather Energy is powerful as that on petrol. Ather Energy is transforming the industry by spearheading the adoption transforming the industry by spearheading the adoption of e-scooters in India with of e-scooters in India with its release of the most its release of the most powerful smart scooter in the Indian market. powerful smart scooter in the Indian market. Its scooters sport:

- high-storage battery density high-storage batterydensity
- a dashboard for a dashboard for navigationinformation
- 75 km ofmileage
- Take less than three hours to fully charge take less than three hours to fullycharge

Reasons for selecting the case study

- Innovative use of technology Innovative use oftechnology
- Ease of charging- Ather Grid Ease of charging- AtherGrid
- Subscription basedmodel
- IncreasingLocalization

ATHER 450X

The Ather 450X is a significant step-up from Ather 450 with improvements across multiple key parameters. Ather 450X is the outcome of an award winning design philosophy and is quicker, more intelligent than its predecessor and comes in three new colors; Grey, Green and White. The scooter is powered with a 6kW PMSM motor, a new 2.9 kWh lithium ion battery and comes with 4 riding modes. In addition to Eco, Ride and Sport, Ather is introducing a new high performance mode, 'Warp'. Ather 450X can go from 0 to 40 kmph in just 3.3 sec in the Warp mode, making it the quickest electric scooter in its category and the perfect choice to navigate through citytraffic.

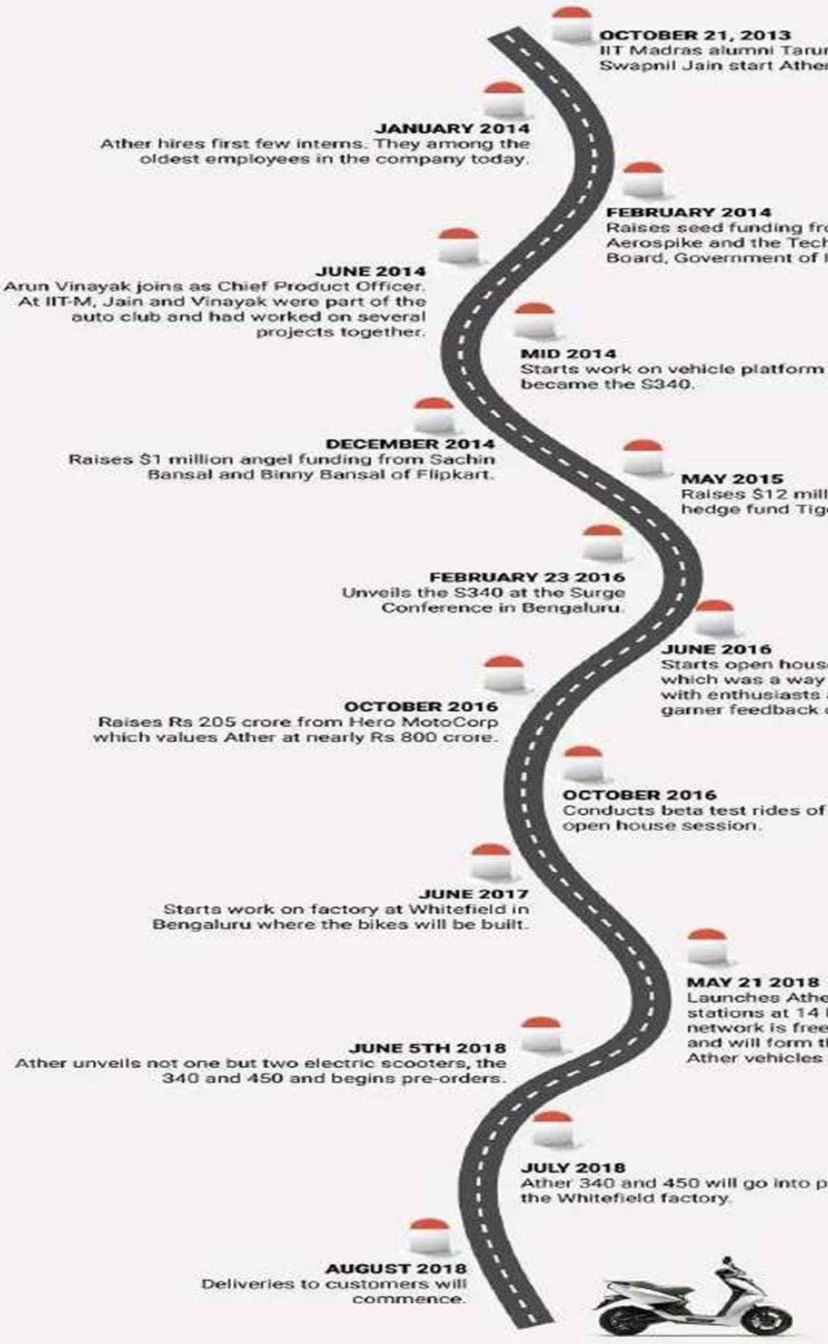
The revolutionary improvement in its battery has enabled a projected Indian Drive Cycle (IDC) range of 116 km and a real life range of 85 km in city conditions. Ather 450X will also charge 50% faster than before at 1.5km per minute, making it the fastest charging rate in the electric two-wheeler category.

Ather 450X will have a 4G sim card and Wifi along with Bluetooth connectivity, allowing riders to answer phone calls and manage music on the touchscreen dashboard. The new 7” touchscreen dashboard, comes with a color depth of 16M and a Snapdragon Quad Core processor. Ather 450X utilizes Android Open Source to offer map navigation, On-board diagnostics and other unique features like Over-the-air updates, Auto Indicator off and Guide-me-homelights.

The Ather mobile app will continue to offer personalized ride statistics, charging status, push navigation and more functionalities like theft & tow detection, live location & vehicle state tracking, voice assistant and welcome lights. Ather 450X will support connected accessories like smart helmets and tyre pressure monitoring systems(TPMS).

The scooter will be available in Bengaluru, Chennai Delhi-NCR, Mumbai, Pune, Ahmedabad, Kochi, Kolkata, and Hyderabad before the end of 2020. It will be available in Coimbatore by first quarter of 2021. The electric scooter manufacturer aims to enter at least two international markets by March 2021, likely in South East Asia.

KEY MOMENTS IN ATHER'S JOURNEY



Along the way, Ather made its senior management hires including:

RAVNEET S. PHOKELA as Chief Business Officer in September 2015;
THIRUPPATHY SRINIVASAN (THIRU) as SVP, Product Development in January 2017;
VENKATESH (VENKI) PADMANABHAN as the Chief Operating Officer in June 2017;
NANDKUMAR KARALE as Head of Vehicle Engineering in July 2017;
and **SUNITHA LAL** as Chief Human Resources Officer in August 2017.

FACTOR DAILY

SOURCE: FD RESEARCH

SUPPLY CHAIN

Ather vehicle was designed entirely in-house, with the manufacturing process utilizing 90 per cent components that are locally sourced. But the lithium-ion cells that make up the battery pack are wholly imported.

As the scooter is built from scratch there are no off-the-shelf parts. To counter this, they started to raise funds expectedly $50 million. There also want to set up another platform for a new line of scooters priced lower than the existing two variants which Ather 350 and Ather 450.For the new plant they were well funded but still needed extra funding.

Ather has so far received $51 million funding including about $20 million from Hero MotoCorp. Some of its other investors include Binny Bansal, Sachin Bansal and Tiger Global.

Challenges

As the company was new in its development it faced a lot of problems in its initial phase of developing the prototype. For example, you've chosen a wrong vendor and that thing can't go into scale manufacturing. So, the biggest task was choosing the right vendor and also to work with them in developing new products.

They faced tough time getting feedback from Indian vendors which was essential for them whereas in China they used to get feedback and quality check within 1/3rd of time. Ather did not have the staff numbers or the financial bandwidth to have a team stationed in China to do the design and quality check. Also none of the vendor knew about electric wire harnessing. The solution? Give the team the time and the space to grow as part of the team. "Now the team is raring to go. They are like we will do this in two years."

Human Resource and Job design

The next task was to build Ather's development process as it was a new technology, completely new platform, new architecture and by a company that has no prior history and people and systems. It became harder to find efficient staff to do this work as it was developing a new product and everyone were working on existing German or Japanese counterparts.

They looked for people from second or third tier companies where they have dirtied their hands in all processes. People who have "actually done injection molding, casting, electronics assembly andnot

managed that process," says Srinivasan.

Design of Goods and Services Design of Goods and Services

To ensure a seamless experience across various functions of the scooter, they have a common design group. "It is called the industrial design team', that works across:

- Userinterface
- Looks
- Feel
- Ergonomics
- Packaging

The 340 and 450 frame is built from mostly from aluminum and some steel components because aluminum frame was lighter and also helped in achieving the manufacturing tolerances. The other thing you will notice on the frame are the large heat sinks, of which the battery has the largest, built into the systems to cool various components including the battery, motor, onboard charging unit, and dashboard.

Strategy

For the company selling a scooter is not the only plans but it wants to make the ownership for the company selling a scooter is not the only plans but it wants to make the ownership experience also as seamless as well. Running out of charge is the biggest anxiety and to remove it experience also as seamless as well. Running out of charge is the biggest anxiety and to remove it Ather has launched its Ather has launched its in-house charging infrastructure in-house charging infrastructure, Ather Grid Ather Grid, about two weeks before the, about two weeks before the scooters opened up for bookings. The company has partnered with scooters opened up for bookings. The company has partnered with cafes, restaurant cafes, restaurants and other test and other such such public places for setting up public places for setting up charging stations. charging stations.

And to improve the ownership experience of the and to improve the ownership experience of the scooters, Ather has also launched a subscription scooters, Ather has also launched a subscription plan called plan called Ather One Ather One that the that the company claims will take care of all predictable expenses incurred in company claims will take care of all predictable expenses incurred in running the running the scooters. scooters.

With a focus on with a focus on end-to-end custom end-to-end customer experience and building smart transportation for the future, and experience and building smart transportation for the future, Ather embraces the cloud to accelerate the process of development, production, testing, and launch Ather embraces the cloud to accelerate the process of development, production, testing, and launch of their cloud of their cloud-based connected scooter based connected scooters. Ather's business relies on multiple public s. Ather's business relies on multiple public clouds and cloud clouds and cloud services, to innovate faster and enable every element of their services, to innovate faster and enable every element of their customer customers' experience. s' experience.

With its with its innovation and operations strategy innovation and operations strategy now Ather wants y now Ather wants to implement these things in to implement these things in near future.

Forecasting

- The electric vehicle startup also plans to perforate internationalmarkets
- Reportedly, the brand intends to set up 6500 charging stations by2023.
- Ather wants to launch a new product every year.
- Besides leasing and retail sales, Ather also plans to enter different businessavenues.
- They plan to set up a manufacturing plant in 2020, that can have an annual production capacity of 10 lakh units.
- Expand to 30 cities by2030

The 340 retails for an on-road price of Rs 109,750 and the 450 retails for Rs The 340 retails for an on-road price of Rs 109,750 and the 450 retails for Rs 124,750. The 124,750. The 340 and 450 will consume about 2.5 -3 units of electricity for a full 340 and 450 will consume about 2.5 -3 units of electricity for a full charge of their batteries; charge of their batteries; so in Bengaluru, a full charge would cost between Rs 14 to Rs 17. so in Bengaluru, a full charge would cost between Rs 14 to Rs 17.

However, Mehta cautioned that at a time however, Mehta cautioned that at a time when there is so much focus and push towards when there is so much focus and push towards EVs in the EVs in the country, there is a risk of country, there is a risk of Chinese products flooding the Indian market. He Chinese products flooding the Indian market. He said there is a need for EV said there is a need for EV companies to come together, engage more closely with the o come together, engage more closely with the government and share learnings with the policymakers. "The industry needs to gogovernment and share learnings with the policymakers. "The industry needs to go electric for its own good. Chinese

competition would kill us if electric for its own good. Chinese competition would kill us if we don't build scale, we don't build scale, volume and supply chain capability," said Mehta.

SCOPE

In the survey an attempt has been made to analyze the job satisfaction of employees of Ather Energy (Gujarat Cement Works). The Head Office of the Ather Energy is situated at Andheri East Mumbai. The study tries to understand the level of satisfaction among the employees ofUTCL. It further explains the are on which employees are mostly dissatisfied. Job satisfaction of the employees has been analyzed on the basis of the following seventeen job related factors.

- Salary and monetarybenefits
- Job security
- Promotion policy
- Workingenvironment
- Employees participation inmanagement
- Freedom ofexpressions
- Nature ofjob
- Interest taken bysuperiors
- Superiors and sub-ordinaterelationship
- Medicare
- Loans
- Conveyance
- L.T.C

Values

- Integrity
- Commitment

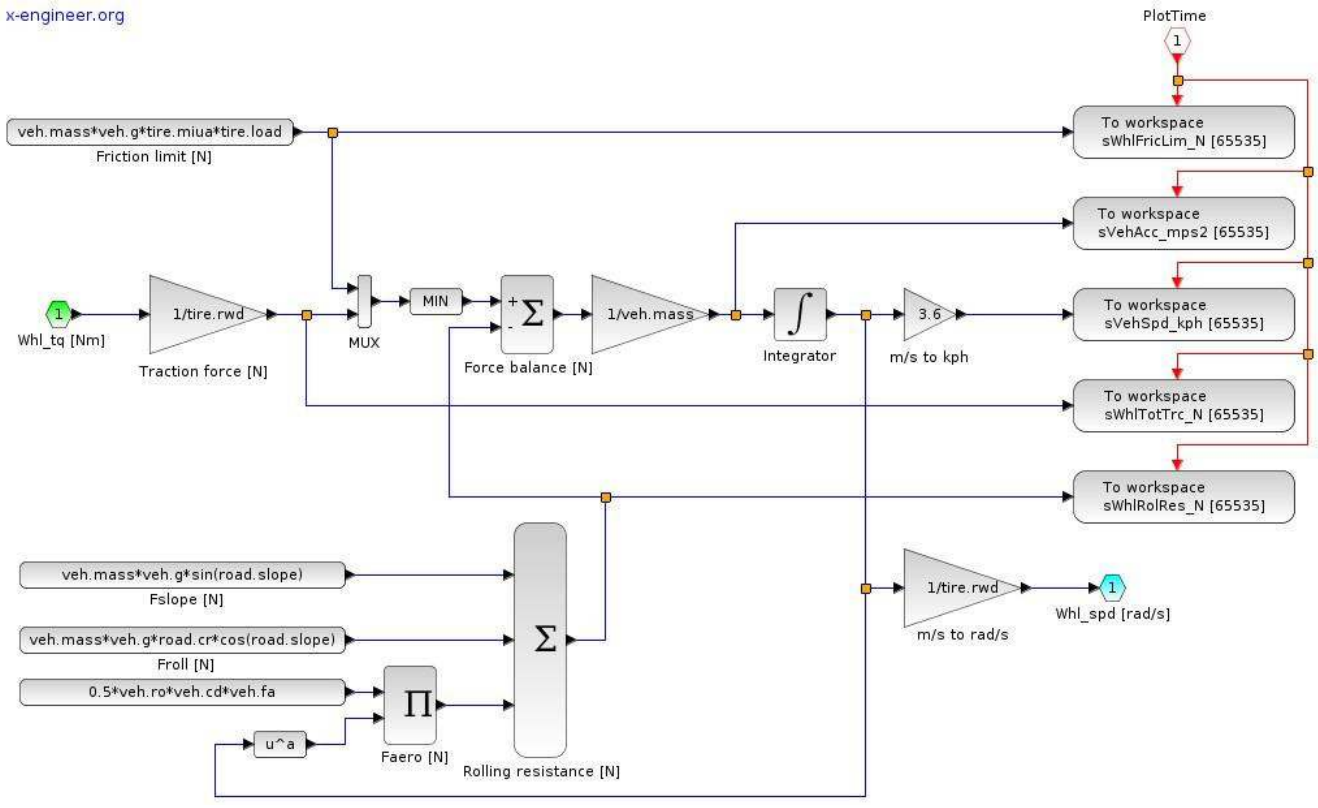
- Passion
- Seamlessness
- Speed

MILESTONES OF THE COMPANY:

Where Li-ion technology being core to Ather product, managing heavy logistics cost & critical operations with visibility into moving parts was a challenge for Ather. And with the vast majority of its supply shipping over the Air, maintaining visibility of the supply chain to plan production was a nightmare for their logistics department. Having multiple sourcing partners across SE Asia it was important for this fast-growing startup to have deep visibility into every aspect of its value chain in order to deliver an affordable premium electric scooter on time.

Over that being a fast-growing startup it was important for Ather to have a seamless flow of information thought out its organization. Whether it's the R&D or Logistics team sitting in Head office or the factory coordinator at Shop floor or the compliance & finance team, everyone was involved in the process and always looked up for relevant information whenever requested.

WORK FLOW MODEL:



In engineering, simulations play a critical part in the design phase of any system. Through simulation we can understand how a system works, how it behaves under predefined conditions and how the performance is affected by different parameters.

In this article we are going to use a simplified mathematical model of the longitudinal dynamics of a vehicle, in order to evaluate the acceleration performance of the vehicle (0-100 kph time) and determine the maximum speed.

INPUT DATA

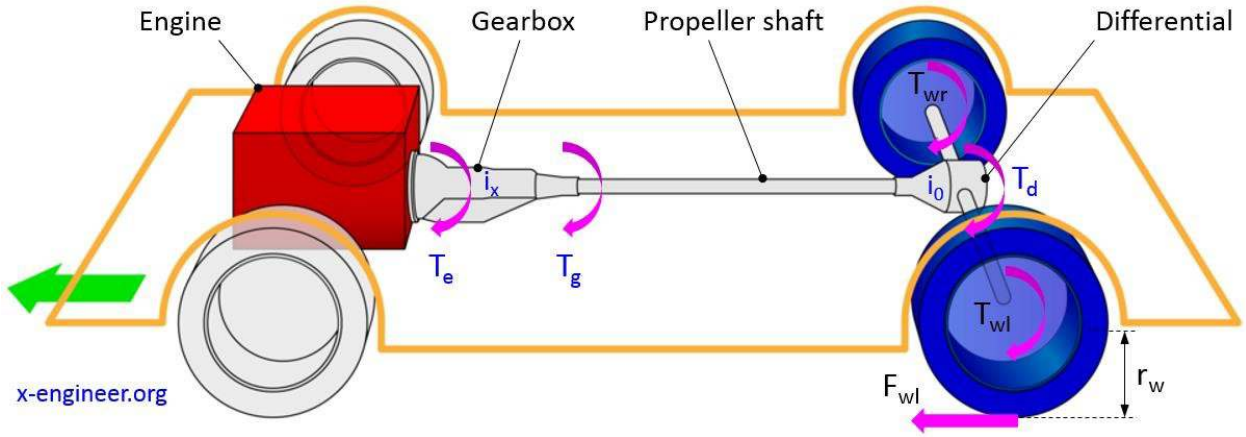
The vehicle parameters are taken from a rear-wheel drive (RWD) 16MY Jaguar F-Type:

Engine		3-litre V6 DOHC V6, aluminum-alloy cylinder block and heads
Maximum torque [Nm]		450
Engine speed @ maximum torque [rpm]		3500
Maximum power [HP]		340
Engine speed @ maximum power [rpm]		6500
Transmission type		automatic, ZF8HP, RWD
Gear ratio	1^{st}	4.71
	2^{nd}	3.14
	3^{rd}	2.11
	4^{th}	1.67
	5^{th}	1.29
	6^{th}	1.00
	7^{th}	0.84
	8^{th}	0.67
	Final drive (i_0)	3.31
Tire symbol		295/30ZR-20
Vehicle mass (curb) [kg]		1741
Aerodynamic drag, C_d [-]		0.36
Frontal area, A [m^2]		2.42
Maximum speed [kph]		**260**
Acceleration time 0-100 kph [s]		**5.3**

VEHICLE LAYOUT

The powertrain and drivetrain of a RWD vehicle consists of:

- engine
- torque converter(clutch)
- automatic (manual)transmission
- propellershaft
- differential
- driveshafts
- wheels



For simplicity, for our simulation example we are going to make the following assumptions:

- The engine is only a source of torque, without any thermodynamics or inertiamodeling
- The engine is running at full load all thetime
- The effect of the torque converter is notconsidered
- The gear shifting is performed instantaneous disregarding any related slip ordynamics
- The effects of the propeller shaft and drive shafts are notconsidered
- The tires have constant radius and the effect of slip is notconsidered
- The mathematical model is going to be implemented as a **block diagram in xcos (scilab)**, based on the followingequations.

MATHEMATICAL EQUATIONS

The **vehicle movement** is described by the **longitudinal forces equation**:

$$Ft=Fi+Fs+Fr+Fa(1)$$

where:

F_t [N] – traction force
F_i [N] – inertial force
F_s [N] – road slope force
F_r [N] – road load force
F_a [N] – aerodynamic drag force

The traction force can be regarded a a “positive” force, trying to move the vehicle forward. All the other forces, are resistant, “negative” forces which are opposing motion, trying to slow down the vehicle.

As long as the traction force will be higher than the resistances, the vehicle will **accelerate**. When the traction force is smaller compared with the sum of resistant forces, the vehicle will **decelerate** (slow down). When the traction force is equal with the sum of resistant forces, the vehicle will maintain a **constantspeed**.

The **traction force** [N] depends on the engine torque, engaged transmission gear ratio, final drive ratio (differential) and wheel radius:

$$Ft=Te\cdot ix\cdot i0\cdot \eta drwd \quad (2)$$

where:

T_e [Nm] – engine torque
i_x[-] – transmission gear ratio
i_0[-] – final driveratio
η_d[-] – driveline efficiency
r_{wd} [m] – dynamic wheelradius

The **dynamic wheel radius** [m] is the radius of the wheel when the vehicle is in motion. It is smaller than the static wheel radius r_{ws} because the tire is slightly compressed during vehiclemotion.

$$rwd=0.98\cdot rws \quad (3)$$

The **static wheel radius** [m] is calculated based on the tire symbol (295/30ZR-20). For a better understanding of the calculation method read the article How to calculate the wheel radius.

The **inertial (resistant) force** [N] is given by theequation:

$$Fi=mv\cdot av \quad (4)$$

where:

m_v [kg] – total vehicle mass
a_v [m/s^2] – vehicle acceleration

The **total vehicle mass** [kg] consists of the curb vehicle mass, the driver’s mass and an additional mass factor. The mass factor takes into account the effect of the rotating components (crankshaft, gearbox shafts, propeller shaft, drive shafts, etc.) on the overall vehicle inertia.

$$mv=fm\cdot mcv+md \quad (5)$$

where:

f_m [-] – mass factor
m_{cv} [kg] – curb vehicle mass
m_d [m] – driver mass

The **road slope (resistant) force** [N] is given by theequation:

$$Fs=mv\cdot g\cdot \sin(\alpha s) \quad (6)$$

where:
g [m/s^2] – gravitational acceleration
α_s [rad] – road slope angle

The **road load (resistant) force** [N] is given by the equation:

$$Fr=mv\cdot g\cdot cr\cdot\cos(\alpha s)(7)$$

where:

c_r [-] – road load coefficient

The **aerodynamic drag (resistant) force** [N] is given by the equation:

$$Fa=12\cdot\rho\cdot cd\cdot A\cdot v2(8)$$

where:

ρ [kg/m^3] – air density at 20 °C
c_d [-] – air drag coefficient
A [m^2] – vehicle frontal area
v [m/s] – vehicle speed

The traction force is limited by the wheel friction coefficient in the contact patch. The maximum **friction force** [N] that allows traction is:

$$Ff=mv\cdot g\cdot\mu\cdot cl(9)$$

where:

μ [-] – friction coefficient
c_l [-] – rear axle load coefficient

Replacing (4) in (1) and rearranging the terms, gives:

$$av=1mv[Ft–(Fs+Fr+Fa)](10)$$

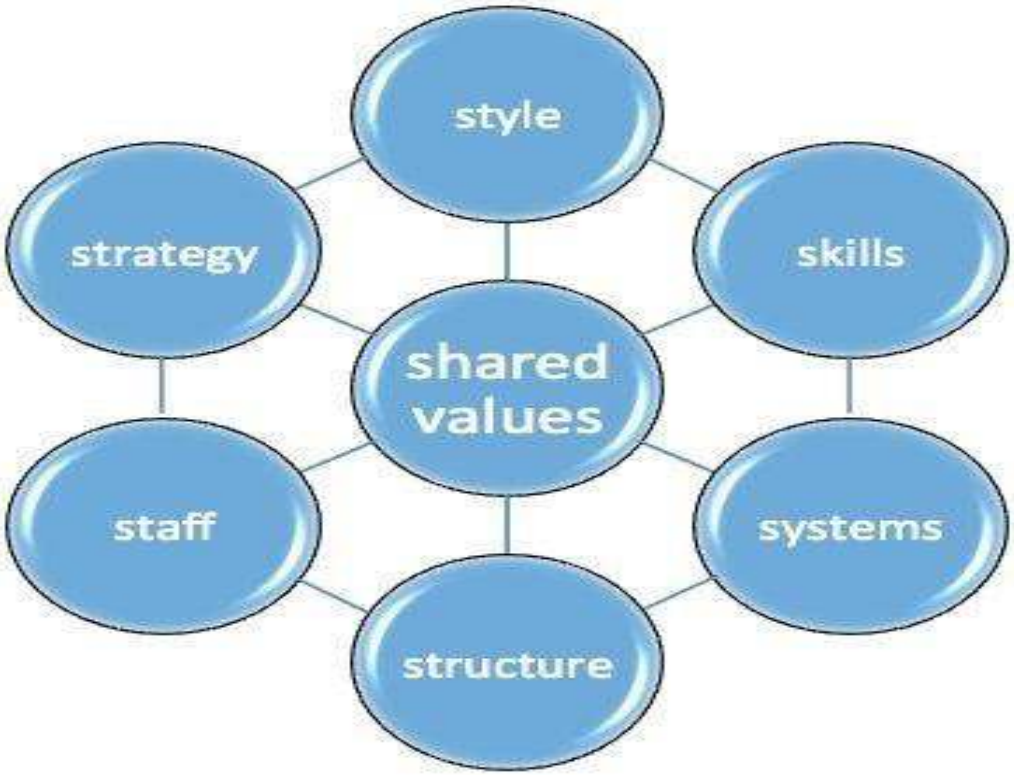
By integrating equation (10) we obtain the vehicle speed [m/s]:

$$v=1mv\int[Ft–(Fs+Fr+Fa)]dt(11)$$

The equations above will be used in the Xcos block diagrams. Before diving in the Xcos model, we need to prepare the input parameters for our simulation.

CHAPTER 3

MCKINSEY'S 7'S MODEL:



1. STRATEGY:

The pricing strategy is based on the product's quality and the other factors which are responsible for the price to fluctuate. The brand sets the price according to the demand in a particular region and the transportation cost sets the market price in Ather Energy.

2. STRUCTURE:

It is a special bicycle with two wheels, which can ride by human, electric or electric auxiliary function. Charger, it is the battery to recharge the device, generally divided into two-stage and three-stage charging mode

3. SYSTEMS :

Ather Energy aspires to achieve excellence in safety practices and performance. Therefore it has put a system in place to:

- People'sinvolvement
- Ensure ownership on safety from linefunction

- Integrate safety into the existing managementsystem
- Assign accountability on safety to the linefunction
- Build competency amongemployees
- Form an integrated approach to build in safety within the contract managementprocess
- Establish lifesaving rules and progressive consequencemanagement

4. STYLE:

I find it easiest to start with the style of e-bike, which can be divided into the following categories:

- Electric mountainbikes
- Electric cruiserbikes
- Electric road/commuterbikes
- Electric cargobikes
- Electric foldingbikes
- Electric fatbikes
- Other specialty electricbikes

5. STAFF:

Behind Ather Energy achievements is a highly motivated and dynamic team comprising of more than 22,000 employees spread across 5 countries, and is constantly growing, With an annual capacity of 10 million numbers.

6. SKILL:

Once employees are empowered with better skills and awareness of best-in-class processes and tools in the manufacturing industry, they are able to improve the quality of the structures they build which in turn helps them establish trust with their customers.

The programmer is breaking new ground now with its pioneering initiative of training women to become skilled employees and thus help them gain sustainable employment. Last year, we successfully trained 4,000 women employees acrossIndia.

7. SHAREDVALUE:

Ather Energy has built India's first intelligent electric scooter. We manufacture two scooter models at present - 450 and 450X. We have also established an electric vehicle charging network called Ather Grid.

CHAPTER 4

SWOT ANALYSIS:

STRENGTH:

Below are the Strengths in the SWOT Analysis of Ather Energy:

1. It is India's biggest Electric bike company.
2. It is a part of the prestigious Bike Group that helps thebrand.
3. It has an annual capacity of 60+thousands
4. Ather Energy accounts to about 30% of the total IndianExports.
5. Data loggingmodules

WEAKNESS:

1. Startup with zero presence in Indian giant two wheeler segment.
2. Hindrance in replacing the existing after servicemodel
3. High vehicle cost for new entrant; twice the price ofcompetition
4. Customer minset negative to slew of failedEV's
5. Strong competition from establishedOEM's
6. Potential Acquisition by OEM due to financial musclepower
7. Non-Availability of testdrive
8. Experience for newcustomer

CHAPTER 5

PORTER'S FIVE FORCE MODEL:

Bargaining power of buyers:

Bargaining power of buyers depends in several factors including prices, marketing, market size and more similar factors. Size of competition is the most important factor among these. In the motorcycle industry, the competition has grown high and it has led to price competition between the rival brands.

As such the bargaining power of the buyers has grown. Moreover, the buyers or customers have become the central focus of businesses which has led to increased clout. Customers have several choices before them and they are more well informed and have grown quality conscious. A factor that helps brands is their brand image. Quality is also an important factor and marketing that has helped brands maintain their clout. Ather Energy is a well-known brand that makes motorcycles and otherproducts.

Its clout is high due to its technology and brand image and the brand has also focused on being customer oriented. While this has managed the bargaining power of customers to some extent, competition still gives customers higher bargaining power.

In the sports bike industry, Ather Energy is among the best brand names and holds some strong bargaining power. Combination of great technology with excellent style helps them moderate the buyers' bargaining power. It is 21st century and the overall bargaining power of the buyers in the motorcycle industry is moderately high. Brands are focused on attracting customers using lower prices and bettertechnology.

Bargaining power of suppliers:

Bargaining power of suppliers has reduced due to several reasons. Some of them are their high numbers, geographical spread and increased need for quality. Quality and brand name have become important factors that determine the power of the suppliers. Brands want that their suppliers have a good brand image, great quality and follow the right rules and laws. Legal compliance has also become an important factor based on which brands decide the eligibility of a supplier. In the motorcycle industry, the suppliers are spread all over theworld.

Ather Energy has its suppliers in several countries all around the world apart from Japan. It has established cooperative relationships with them for a smarter supply chain management. This partnership is based on a relationship for mutual benefit. Yamaha's clout comes from its market presence and size. Its suppliers are scattered all over the world and are smaller in size which does not allow them much control. Their bargaining power remains limited and based on their availability, Ather Energy has very large number of choices. This gives Ather Energy a very high leverage in terms of suppliers. Their overall bargaining power remains limited and low.

Threat of substitutes:

There are two factors that have grown the threat from substitutes. One is the increase in number of brands making small cars and the second is competition. Small cars have created pressure on the demand for motorcycles. Moreover, the number of local and international brands making bikes has grown. The threat of substitutes has grown for the motorcycle brands. In several parts around the world, people use bicycles for low distance fares and as a substitute for the motorcycle. However, motorcycle industry has a very large customer segment globally.

Ather Energy is also a highly appreciated brand throughout the globe for its technology and efficiency. The threat of substitutes may grow in the wake of higher fuel prices. People are looking for fuel efficient bikes and Ather Energy has released several in this segment. In the developing countries, the need for such bikes is higher. The overall threat from substitutes gets moderated by the style, technology and efficiency of Ather Energy bikes. Other transportation systems also act as a substitute and are a threat for the motorcycle industry. Overall threat from substitute products for Ather Energy is low because motorcycles are still a preferred mode of transportation in most parts of the world.

Threat from new brands:

New entrants do not pose any major threat for the existing brands. The most important factors behind it are the high level of investment and marketing and HR expenses. There is a very high level of financial investment required to erect a new brand. Marketing and skilled HR are also an important requirement that have led to higher costs in the motorcycle industry.

Any new player trying to enter the brand faces several barriers. Law is also an important barrier that can reduce the pace of growth or become a costly hindrance to the growth of a brand. Legal compliance increases operational costs for motorcycle brands. In this way, the barriers to entry in the motorcycle industry are very high making entry of new brands difficult. So threat from any new brand remains minimized.

Rivalry between competing brands:

The rivalry between competing brands is higher in the 21st century. The number of brands in the market is high and each one is focused on quality, technology, customer convenience and pricing. All these factors are essential to creating customer loyalty. Ather Energy has several competitors in the lower, middle and higher price range. From Ducati to Honda, Hero and many more there are several competitors in the market.

Some facts that have helped Ather Energy overcome this threat are its brand image, focus on technology, customer service and other important strengths like skilled human resources. Ather Energy has maintained a good brand image throughout the world by investing in social projects and by its technological efficiency and focus for customer service. However, the number of brands with greater technology, efficiency and quality is high which makes the overall competition high.

CHAPTER 6

FINANCIAL STATEMENT ANALYSIS:

CONSOLIDATED STATEMENT OF BALANCE SHEET

STANDALONE BALANCE SHEET

Figures in INR Lacs

Particulars	31 March, 2017	31 March, 2016	31 March, 2015	31 March, 2014	31 March, 2013
EQUITY LIABILITIES					
Shareholders Funds					
Share Capital	33,459.46	425,543.46	420,793.46	418,959.00	416,009.00
Reserves and Surplus	4,055,470.23	3,984,043.52	3,749,500.97	2,942,148.00	2,703,183.00
Money Received Against Share Warrants	-	-	-	-	-
Share Application Money Pending Allotment	-	-	-	-	-
Non-Current Liabilities					
Long Term Borrowings	1,835,885.00	1,961,105.00	1,350,555.00	1,450,555.00	1,527,000.00
Deferred Tax Liabilities	-	-	-	-	-
Other Long Term Liabilities	8,983.83	950.20	1,133.15	948.00	585.00
Long Term Provisions	5,429.45	6,600.27	6,778.69	5,265.00	5,815.00
Current Liabilities					
Short Term Borrowings	1,231.80	1,228.00	1,228.00	2,135.00	1,523.00
Trade Payables	14,445.03	22,064.77	10,089.59	9,573.00	8,505.00
Other Current Liabilities	1,178,018.75	278,953.67	348,695.88	321,120.00	609,752.00
Short Term Provisions	55,028.60	60,578.31	153,395.87	90,402.00	22,058.00
Total Equity and Liabilities	7,185,949.95	6,141,067.20	6,042,104.60	5,241,105.00	5,094,430.00
ASSETS					
Non-Current Assets					
Fixed Assets					
Tangible Assets	13,245.91	13,450.67	13,547.87	10,625.00	10,728.00
Intangible Assets	288.11	294.41	205.54	178.00	86.00
Capital Work-In-Progress	-	-	-	-	-
Intangible Assets Under Development	-	-	-	-	-
Non-Current Investments	5,545,101.69	4,981,302.51	4,567,099.25	4,493,199.00	4,194,266.00

TOFLER

Deferred Tax Assets	4,147.51	4,044.06	7,549.20	468.00	184.00
Long Term Loans and Advances	87,213.27	57,062.94	41,162.68	51,232.00	54,618.00
Other Non-Current Assets	-	1,596.00	-	7,712.00	15,300.00
Current Assets					
Current Investments	342,820.84	501,019.63	279,328.59	47,497.00	43,409.00
Inventories	-	-	-	-	-
Trade Receivables	2,064.53	4,086.68	58,062.48	53,751.00	37,161.00
Cash and Cash Equivalents	252,163.05	514,267.88	1,050,266.09	559,960.00	714,472.00
Short Term Loans and Advances	5,426.58	7,324.43	4,407.08	3,853.00	3,414.00
Other Current Assets	953,498.66	54,897.78	20,475.83	12,630.00	20,812.00
Total Assets	7,185,949.95	6,141,067.20	6,042,104.60	5,241,105.00	5,094,430.00

CONSOLIDATED STATEMENT OF PROFIT AND LOSS:

STANDALONE PROFIT AND LOSS

Figures in INR Lacs

Particulars	31 March, 2017	31 March, 2016	31 March, 2015	31 March, 2014	31 March, 2013
CONTINUING OPERATIONS					
Revenue from operations	54,402.00	44,069.78	44,708.87	485,831.00	512,871.00
Other Income	944,090.47	766,336.08	1,275,931.99	57,088.00	62,395.00
Total Revenue	998,492.47	810,404.86	1,320,640.86	542,919.00	575,266.00
Cost of Materials Consumed	-	-	-	-	-
Purchases of Stock in Trade	-	-	-	-	-
Changes in Inventory	-	-	-	-	-
Employee Benefit Expenses	16,839.06	15,077.32	13,646.76	11,238.00	8,694.00
Finance Costs	148,991.14	146,292.72	157,761.99	163,406.00	147,624.00
Depreciation and Amortization	828.74	702.45	896.85	533.00	707.00
Other Expenses*	71,368.44	78,273.26	61,917.22	69,729.00	41,096.00
Total Expenses	238,027.38	239,345.76	234,222.82	234,906.00	198,120.00
Total Revenue Less Total Expenses	760,465.09	571,059.10	1,086,418.04	308,013.00	377,146.00
Prior Period and Exceptional Items	677,267.41	240,642.83	157,294.81	-	-
Profit Before Extraordinary Items	83,197.68	330,416.27	929,123.24	308,013.00	377,146.00

TOFLER

Extraordinary Items	-	-	-	-	-
Profit Before Tax	83,197.68	330,416.27	929,123.24	308,013.00	377,146.00
Current Tax Expense	-	26,500.00	30,000.00	3,000.00	6,000.00
Deferred Tax Expense	796.55	2,605.14	-7,081.42	-304.00	-208.00
Profit From Continuing Operations	82,401.12	301,311.13	906,204.66	305,317.00	371,354.00
Profit From Discontinuing Operations (After Tax)	-	-	-	-	-
Net Profit/Loss	82,401.12	301,311.13	906,204.66	305,317.00	371,354.00

RATIO

IMPORTANT RATIOS

Particulars	31 March, 2017	31 March, 2016	31 March, 2015	31 March, 2014	31 March, 2013
Leverage Ratios					
Total Debt/Equity Ratio	0.74	0.37	0.41	0.53	0.62
Total Assets/Equity Ratio	1.76	1.39	1.45	1.56	1.63
Total Debt/Total Assets Ratio	0.42	0.27	0.28	0.34	0.38
Interest Coverage Ratio	6.10	4.93	7.89	3.01	3.55
Liquidity ratios					
Quick Ratio	0.48	2.81	2.70	1.56	1.24
Current Ratio	1.25	2.98	2.75	1.60	1.28
Performance ratios					
Gross Margin	100.00%	100.00%	100.00%	100.00%	100.00%
Net Margin	8.25%	37.18%	68.62%	56.24%	64.55%
Return on Fixed Assets	609.75%	2195.33%	6588.95%	2826.22%	3434.01%
Return on Equity	2.02%	6.83%	21.73%	9.08%	11.91%
Return on Capital Employed	25.69%	41.08%	99.26%	115.10%	197.27%
Total Asset Turnover	0.14	0.13	0.22	0.10	0.11
Fixed Asset Turnover	4.03	3.21	3.25	44.97	47.43
Days Receivables Outstanding	0	2	16	36	23
Days of Inventory	N.A.	N.A.	N.A.	N.A.	N.A.

CHAPTER 7

LEARNING EXPERIENCE

All the statutory and non-statutory measures are provided to employee's asper the standard measures, which improves employee' s satisfaction and increase productivity. Any organization success and growth depends on employees. The company may have rich resources of capital, material, infrastructure, machines and technology but if the quality of manpower is not good, the organization cannot succeed. Employee welfare plays a vital role in every organization. Besides several other factors the economic development of a country depends upon the effective functioning of employees. In order to achieve this superior and the state should take necessary steps for the satisfaction of employees in their respectivejobs.

Employees are satisfied with the present working conditions and feel secure about their job. Almost all the employees are satisfied with the wages paid to them.80% of the employees feel that there should be an incentive wages scheme for efficient work in the organization.60% of the employees feel that the management is sympathetic to some extent in their problems faced at workstation; Management shares a very good relation with the workers.75% of the employees were more than 6 years in the organization.95% employees were satisfied with the facilities provided to them and are free to express their views freely to the management. Supervisors are ready to clear the doubts and help in improving theirperformance.95% of the employees feel that the company policies really protect theirinterests.80% of the employees are satisfied with the present management setup. The Company following 0% tolerance policy.

BIBLIOGRAPHY

BOOKS REFERED:

- Build Your Own Electric Vehicle, Third Edition - Bob Brant and Seth Leitman
- Electric and Hybrid vehicles - Tom Denton
- Energy Management Strategies for Electric and Plug-in Hybrid Electric vehicles -Sheldon S. Williamson
- The Future of Electric vehicles: A sustainable solution – TaiwoAyodele

WEBSITE:

- www.atherenergy.com/
- https://www.atherenergy.com/careers
- www.atherenergy.com/about

OTHER REFERENCES:

- "Ather Energy Electric Scooters to hit Coimbatore roads from 2021". Kovai Daily.8 September 2020. Retrieved 25 September2020.
- "Ather Energy mimics Tesla's model to sell its smart electric scooters". BusinessStandard.
- "Ather to enter two international markets by March 2021". Autocar India. Retrieved13 August2020.

Format of Weekly Progress Report

I WEEK REPORT

Student Name	PUNEETH A
USN	1CR19MBA66
Title of the Study	A Report of the Structure and Dynamism of Business Firm
Organization	Ather Energy
Duration (start date - End date)	6.8.2020 - 12.8.2020
Chapters covered	Chapter 1 and Chapter 2
Descriptions of activities performed during the week	Introduction to organization and industry, Organization profile (Back ground, nature of business, vision, mission, quality policy, workflow model, product/service profile, ownership pattern, achievements / awards, future growth prospects.

II WEEKREPORT

Student Name	PUNEETH A
USN	1CR19MBA66
Title of the Study	A Report of the Structure and Dynamism of Business Firm
Organization	Ather Energy
Duration (start date - End date)	13.8.2020 - 18.8.2020
Chapters covered	Chapter 3
Descriptions of activities performed during the week	McKensy's 7S framework, Porter's Five Force Model for the chosen organization.

III WEEKREPORT

Student Name	PUNEETH A
USN	1CR19MBA66
Title of the Study	A Report of the Structure and Dynamism of Business Firm
Organization	Ather Energy
Duration (start date - End date)	19.8.2020 - 26.8.2020
Chapters covered	Chapter 4 and Chapter 5
Descriptions of activities performed during the week	SWOT Analysis, Analysis of financial statement

IV WEEKREPORT

Student Name	PUNEETH A
USN	1CR19MBA66
Title of the Study	A Report of the Structure and Dynamism of Business Firm
Organization	Ather Energy
Duration (start date - End date)	27.8.2020 - 30.8.2020
Chapters covered	Chapter 6
Descriptions of activities performed during the week	Learning experience