Prapti

Research Journal

<u>Vol.3 Issue – 2</u>   <u>No.5</u>   <u>DECEMBER 2019</u>

A Study on Trends and Forecasting of Stock Price Movements of Apcotex Rubber Companies with Special Reference to NIFTY

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Abstract

Savings and investment play a dominant role in one's life. People save money to buy bread and butter, pay tuition fees, meet important expenses in emergencies, buy or construct a dream house, life expectancy, etc. They would like to invest the saved money in companies in the form of securities like shares, debentures, bonds, Government bonds, etc. with an expectation of returns which may be fixed or variable. Rubber is one of the most important and in – demand materials in the world. In 2016, the world consumes 12.6 million tons of rubber, but only produced 12.4 million tons, a gap of 2 lakhs tons between production and the needed supply. Hence, it can be said there will be a high demand for rubber from the 2021 onwards. Globally, India was the third largest producer of rubber and fourth largest consumer of rubber products. The Indian Rubber Industry is one of the key sectors of the economy and a sector that has been in existence in early days. Though in the initial days, the sector was more attuned to catering to the inward needs to the country, the sector has now evolved to become a major manufacturing sector.

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The findings of the study revealed that GRP Rubber Limited has shown a higher growth in share price followed by Apcotex Industries and Harrison Malayalam Limited. However, investors should look into the trends of share market, the company one is invested in, and by following an appropriate investment strategy, one can be successful and withstand in the stock market. 'Intelligent Decisions' is the parachute to be successful in making investment via the share market.

KEYWORDS: Investment, Savings, Share price, Rubber industry, Trading, Earnings, Index, National Stock Exchange, Bombay Stock Exchange.

1. INTRODUCTION

In today's world, savings and investment play a dominant role in one's life. People save money to buy bread and butter, pay tuition fees, meet important expenses in emergencies, buy or construct a dream house, life expectancy, etc. They would like to invest the saved money in companies in the form of securities like shares, debentures, bonds, Government bonds, etc. with an expectation of returns which may be fixed or variable. People watch the movement of stock of the company through stock exchange. This will create a desire to invest or not to invest in stock exchange. Investing means to invest a certain percentage of saving in a company. It is an exchange of fund from one's hand to another one, may be a person, company or an institution to be used for any productive activity that will yield returns from earnings in the form of Profit, Interest, Dividend, and Capital appreciation in the future. Investment, usually be in the form of equity or debt capital of a corporate or non-corporate business unit. Generally, an Investment means conversion of cash or money into a monetary asset or a claim on

future money for a return. It is the use of money in the hope of making more money.

Apcotex is one of the producers of Synthetic Rubber (NBR & HSR) and Synthetic Latex (Nitrile, VP latex, XSB & Acrylic latex) in India. The company has one of the broadest ranges of Emulsion Polymers available in the market today. The various grades of Synthetic Rubber find application in products such as Automotive Components, Hoses, Gaskets, Rice De-husking Rollers, Printing and Industrial Rollers, Friction Materials, Belting and Footwear. Our range of Latexes are used for Paper/Paper Board Coating, Carpet Backing, Tyre Cord Dipping, Construction etc.

FACTORS AFFECTING SHARE PRICE OF A COMPANY

Stock prices are affected by following factors:

- ❖ Volatility in the market
- ❖ Current economic conditions
- ❖ Popularity of the company
- ❖ International factors like Crude oil prices, National political stability
- ❖ Effects of international markets like Shankai, NYSE, etc.
- ❖ World political situation
- ❖ Trade disputes between countries

STATEMENT OF THE PROBLEM

Rubber is one of the most important and in – demand materials in the world. According to Reportlinker.com, in 2016, the world consumes 12.6 million tons of rubber, but only produced 12.4 million tons, a gap of 2 lakhs tons between production and the needed supply. Hence, it can be said there will be a high demand for rubber from the 2021 onwards. Investors, if they invest their money in rubber manufacturing companies, can make good returns. But, it is very essential in today's scenario to watch the movement of share price in order to make investment

decision. Share price change day by day due to market forces.

OBJECTIVES OF THE STUDY

- ❖ To analyze the fluctuations in share market towards share price of select rubber companies with reference to NIFTY from 2014 – 2019.
- ❖ To examine movement of money flow of six selected rubber companies.
- ❖ To estimate the future trend of share price of selected rubber companies.

2. METHODOLOGY
DATA COLLECTION

Data consists of secondary data. Secondary data are those data which are already published and can be obtained from newspapers, journals, magazines, websites, Government Records and Reports, Company profile, etc. In the present study, secondary data was used and is collected from NSE (National Stock Exchange) website. APCOTEX for the 5 years (i.e.) 2014-2019.

PERIOD OF THE STUDY

The study period was from February 2019 to May 2019.

TOOLS AND TECHNIQUES OF THE STUDY

In the present study, to identify the movement of share price and to predict the future share price, various tools and techniques applied were as follows:

Descriptive Statistical Tools

- ❖ Mean/Average
- ❖ Standard Deviation
- ❖ Variance
- ❖ Coefficient of variance

LIMITATIONS OF THE STUDY

The study consisted of following limitations:

1. Accuracy of the data was limited as the studywas based on secondary data

2. The study consisted of five years data collected from websites of stock exchanges

3. Since future is uncertain, rubber industry, is no exception, the movement of share price predicted are subject to change.

4. Share price movement was based on demand factor which is difficult to measure.

3. REVIEW OF LITERATURE

❖ Pattabhi Ram. V (1995)1 analyzed that before the selection of shares for investment they should need to know about fundamental analysis and equity research. Investors should look for the value with a margin of safety in relation to price is the opinion of a researcher, and it is the gap between price and value. The study revealed that Indian Stock Market is an inefficient market because of lack of communication network. He concludes that there is a mismatch between price and value that provides opportunity for long term investors.

❖ Madhusoodan (1998) found that over the period of January 1981 to December 1992, BSE sensitivity and national indices did not follow random walk using correlation analysis on monthly stock return data.

❖ Shyamlal Dev Pandey and Gopi Prachetas (2012)26 Proves the existence of inefficiency in Indian stock market that is low volatile stock offers higher rate of return than high volatile stocks.

❖ Sarbapriya (2012) proves that, In order to avail tax benefits investors may dispose the loss in the month of March by making into shares.

❖ Manish R.Pathak (2013) States that the day of the week and month of the year effect is not noticed in Indian stock market due to increased

stock volatility, increased awareness among Indian investors.

4. DATA ANALYSIS AND INTERPRETATION
APCOTEX INDUSTRIES LIMITED

Monthly Average price is the total of share price reflected in a stock exchange divided by the number of days of a particular month. The following table shows the movement of share price for each month for the year: 2014 – 15, 2015 -16, 2016 – 17, 2017 – 18 and 2018 – 19.

Monthly Average Price of APCOTEX Industries Limited

*Amt in Rs.

Month /Year	2014-15	2015-16	2016-17	2017-18	2018-19
April	127.39	480.63	238.65	353.87	536.85
May	139.28	477.29	287.02	373.85	550.48
June	169.86	454.9	358.14	388.60	525.78
July	179.73	497.82	380.80	423.35	532.88
August	284.62	480.63	391.32	400.74	595.69
September	333.59	477.29	381.18	416.32	608.5
October	342.98	454.9	374.04	466.57	534.9
November	438.09	542.66	331.20	476.58	543.05
December	472.21	574.89	310.72	494.99	532.45
January	539.67	466.29	318.21	491.45	512.55
February	472.78	261.36	324.57	493.95	452.89
March	497.82	229.51	316.79	503.89	495.40

INTERPRETATION

The above table shows the average share price of APCOTEX Industries Limited Rubber company per month for five years, i.e. year 2014 -15, 2015 -16,

2016-17, 2017-18 and 2018-19, calculated by considering the day-to-day fluctuations in share price in a stock market.

In the year 2014 -15, it was found that share price was increasing from April till January. This is a 'bullish trend' and investors like to buy shares in this trend. On the other hand, share price was decreased during February and March. This is a 'bearing trend' and in this stage, the investors would sell shares.

MEAN OF SHARE PRICE OF APCOTEX INDUSTRIES LIMITED:

The following table shows the mean of share price of APCOTEX Industries Limited for the year 2014 -15, 2015 – 16, 2016 – 17, 2017 -18 and 2018 – 19.

*Amt in Rs.

Year	Mean	% Change
2014 -15	333	0
2015 -16	450	+35%
2016 – 17	334	-26%
2017 – 18	440	+31.7%
2018 - 19	53	+21.5%

Source data: Secondary Data

INTERPRETATION

From the above table, it is clear that the mean share price of APCOTEX Industries Limited was Rs.450 in the year 2015 -16 which was higher when compared to the year 2014-15. But in the year 2016- 17, it was declined to Rs.334 and the same was increased to Rs.440 in the year 2017 -18 and Rs.535 in the year 2018 – 19.

Further it is inferred that the percent change from 2014-2019, the mean share price of selected rubber companies was registered a positive growth except during the year 2016-2017. Though the sector is observed with positive growth, the trend is found to be declining or increasing in a decreasing rate.

STANDARD DEVIATION, VARIANCE AND COEFFICIENT OF VARIANCE OF SHARE PRICE OF APCOTEX INDUSTRIES LIMITED

Year	Standard Deviation	Variance	CoV
2014-15	151	22962	0.45
2015-16	102	10395	0.23
2016-17	45	2034	0.14
2017-18	54	2866	0.12
2018-19	41	1664	0.08

The above table showed the standard deviation, variance and coefficient of variance for the following year, 2014 – 15, 2015 – 16, 2016 – 17, 2017 – 18 and 2018 – 19.

INTERPRETATION

Standard deviation denotes the deviation in share price during the five years 2014, 2015, 2016, 2017, and 2018. It was found that there are more deviations in the price movement of share in the year 2014-15, 2015-16, 2016-17, 2017-18 and 2018-19. It was higher in the year 2014-15 and lower in year 2018-19. Variance in share price was high in the year 2014-15 and was low in 2018-19.The coefficient of variation denotes that the share price was subject to greater variation during the year 2014 -15 and consistent in the year 2018 -19.

It is inferred from the above analysis that the higher CoV (45%) is registered in the year 2014-15 and the lowest (8%) found in the year 2018-19 and concluded that the share prices fluctuation are very high and found moderate risky.

MONEY FLOW INDEX OF APCOTEX INDUSTRIES LIMITED

Month /Year	2014-15	2015-16	2016-17	2017-18	2018-19
April	102	1817	323	243	1409
May	130	1214	290	300	964

June	171	1743	163	335	1577
July	192	1078	299	565	1082
August	100	926	329	551	1177
Sept	171	523	337	528	1170
October	230	182	365	420	1016
Nov	183	295	236	607	1630
Dec	360	186	486	851	1578
January	488	180	525	1096	1843
Feb	694	256	368	521	1014
March	824	294	446	717	736
Max	824	1817	525	1096	1843
Min	100	180	163	243	736
Money flow ratio	8.24	10.09	3.22	4.51	2.50
Money Flow Index	99.07	99.09	99.03	99.04	99.02

The above table showed the money flow index of APCOTEX Industries Limited for the following years 2014 -15, 2015 – 16, 2016 – 17, 2017 – 18 and 2018 - 19.

INTERPRETATION

It was found that in the year 2014 -15 money inflow was high in the month of March and was low in August.

Money flow ratio was 10.09 high in the year 2015 -16 indicating there was money flowed out was upto 10%.

The average share price of four years, i.e., 2015 to 2018 have been considered for the prediction of trend and future value of the annual average share prices of APCOTEX Industries Limited. The trend analysis is also used to observe the direction of movement or changes of selected variables. The following table shows the trend analysis for APCOTEX Industries Limited.

*Amt in Rs

Year	APCOTEX Industries Limited
2014	-
2015	449.85
2016	334.39
2017	440.35
2018	535.12
2020	566.54
2025	747.43
2030	928.31

Source: Secondary Data

It was low (2.50 per cent) in the year 2018 – 19.

TREND ANALYSIS OF APCOTEX INDUSTRIES LTD INTERPRETATION

From the above table, it can be seen that there was increasing trend in the average share price of APCOTEX Industries Limited Ltd. Annual average share price for the year 2020 is Rs.567, for the year 2025, it is Rs.747 and for the year 2030, it is Rs.928.

SUGGESTIONS OF THE STUDY

Based on the above findings, the following suggestions were offered for the study:

- ❖ The study may be offering awareness to the potential investors to make wise decisions in investing share market during mixed growth trends.

- ❖ The investors may take advices after the analysis if the market is not favorable or found risky from the market experts.

- ❖ The concerned authorities such as SEBI, NSE, BSE etc, should bring necessary awareness and information to reduce the panic or fear of investing in share market by organizing events and campaigns.

- ❖ Financial literacy and investor awareness programme should be conducted at various centers more frequently to bring in new investor into the share market, make them participate in the programme, so that idle money, if any, can be converted as protective money.

- ❖ An institutional arrangement is required to protect small investors against monetary losses. This will increase the confidence of investor and would significantly reduce time and money loss.

CONCLUSION

Investing money into a capricious, unsound and irrepressible factor was more risky. Like a lottery draw, the success of investment through stock exchange partly attributed to luck. Many people have lost their huge amount of money by investing in securities due to their poor decision on investment. Recently, investors with shares in financial institutions, manufacturing and Information Technology companies which were once a fairly stable investment, have incurred high losses at the time of financial crisis. Investors must understand that risk was an intrinsic part of investing, although, attractive benefits to successful financial investment. Only an intelligent investment decisions, an investor, by investing can earn significant capital gains, income stability and safety of principalamount.

REFERENCES:

1. http://www.businessdictionary.com/definition/share- price-index.html

2. www.indiainfoline.com/rubber

3. www.m.ststisticstimes.com/rubber

4. www.ReportLinker.com

5. https://www.ibef.org/download/Rubber_Plastics_ 220 708.pdf

6. https://cleartax.in/s/sebi.

A Review on Cyber Attacks, Cyber Bullying and the Need of Cyber Security

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Abstract

This is the age of internet at this time a lot of people are using internet on a daily basis. It provides lots of information and opening a gate way to connected to the outside world. But unfortunately it is also creating a threat for governments, business man and also for the individuals who are all using the internet and social network. The main challenge of cyber security is the evolving nature of the attacks. This paper presents the importance of cyber security along with the various issues & risks that are in the current digital era. The analysis made for cyber- attacks and their statistics shows the intensity of the attacks and to examine methods of cyber bullying and its influence or effects on victim and also to create a clear idea about what is cyber security and the need of it.

1. INTRODUCTION:

Cyber-attacks and cyber bullying are the major security threats in the internet due to the increasing trust and usage of internet, almost all industries governments and even individuals persons as transformed the transactions to the

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Cyber bulling can cause by various kind of bulling for example harassment emotionally bulling behavioural bulling verbal bullying work based bulling (According to Olweus et.al,(1999) victims are psychologically and physically hurtled due to bullying situation.

2. CYBER ATTACKS:

The number of cyber incidents in the second quarter of 2018, as according to positive technology was 47% higher than the number from just a year previous.The common goal of the cyber-attack is to disable or to gain access to the target system the goal can be achieved by applying various attacks on the target system. Several cyber-attacks exist and even evolve day by day some of the common cyber-attacks are explained below.

2.1 SPAM

Spam is an unwanted Email Message. Spam E-mails can be not only the time wasting task for the user but also the java applets which executes automatically when it was open / read.

2.2 MALWARE

Malware is malicious software that is designed to cause destruction to a single system or a network. Basic malevolent software such as worms, viruses, and Trojans and recent malicious software such as spyware, Ransomware belongs to this category. The malware infects the system or network when a user clicks a dangerous link, through email attachment or while installing risky software. The major point is malware reproduces or spreads when it interacts with other system or device. Some of the causes include blocking

access to the network, installs additional spiteful software, gathers information.

2.3 SQL INJECTION

A Structured Query Language (SQL) injection is a quite common attack that occurs when an attacker inserts malicious code into a server that uses SQL and forces the server to reveal information it normally would not.An attacker could insert a SQL injection by simply adding malicious code into a website search box.

2.4 MAN-IN-THE-MIDDLE ATTACK

Man-in-the-middle (MITM) attacks will happen when attackers came into a two part transaction. Once the attackers get into the traffic they can easily filter and steal the data. It is normally known as eavesdropping attacks. Some of the MITM attacks are password stealing, credential forwarding etc. In an unsecured public Wi-Fi the attacker can insert them self without knowing, the visitor passes all information through the attacker.

2.5 PHISHING

Phishing is the process of sending fraud and fake information from a reliable source usually through email. The major motive of phishing is to steal sensitive data like credit card and login information or to install malware on the victim's machine. Phishing is an increasingly common cyber threat.

2.6 DENIAL-OF-SERVICE ATTACK

A denial-of-service attack create a excessive traffic on system, servers, networks as result the system can't process the information at time. Attackers can also use multiple devices to launch DDoS Attack. Instead of launching a single attack the attacker launches a no of different attacks. This kind of attack is distributed-denial-of-service (DDoS) attack. 24% of industries have gone through a DDoS attack in the last year.

3. CYBER BULLYING:

Cyber bullying can be referred to electronic bullying, that occurs with the use of new technology. There are various forms of cyber bullying like, harassment, exclusion and ostracism defamation, impersonation, outing and trickery (Willard (2006).

Figure:1 Source: Justice W.Patchin(2016)

According to Sameera Hinduja et. al, sending unwanted messages is in the top position with 75.4% in cyber bullying. Based on the report, snap chat, Facebook, YouTube, Instagram, email, twitter, instant messaging and online games are the leading cyber bullying techniques that taken place among peoples. Based on Google Analytics, 9.6 million victims are seeking for help due to cyber bullying in 2016.

3.1 FLAMING

Flaming is the place where online battles or fights run through e-mails, instant messages, chat room etc. In flaming angry and rude words or messages will be exchanged between the particles.

3.2 DENIGRATION

Denigration is most familiarly known as -Online Mean. Online mean is done on teasing or making fun of one person or group of people through internet. This denigration can be done in e-mail, instant message, chat room, Facebook, twitter and other social media websites too.

3.3 EXCLUSION

As the name describes that, exclusion which means excluding or intentionally leaving someone from current group like, Facebook, snap chat, instant message, twitter, friends site and etc.

3.4 OUTING/TRICKERY

In outing or trickery, a person will share the personal information of another person like videos, pictures, chat messages, audios and etc. This outing sharing of one's information is illegal because, respective person is unknown about the situation.

3.5 HARASSMENT/CYBER STALKING

Cyber stalking is one type of harassment that taken place through online and it means repeatedly sending hateful or cruel messages to someone in online.

4. CYBER SECURITY: TERMS AND DEFINITION

The term -cyber security‖ refers to a collection of actions, assurances, guidelines, policies, risk management approaches, security concepts and safeguards, technologies, tools and training that may be used to secure and protect the cyber space as well as organizational and user assets. It attempts to safeguard and protect the security properties of users against relevant security risks prevailing in the cyber environment. Cyber security is regarding protecting the online of yours as well as community based electronic info and equipments from unauthorized access and alteration.

5. NEED OF CYBER SECURITY:

The increasing amount and rate cyber security threats including various cyber-attacks and other online threats demand that we remain aware of securing our systems and data. The average unprotected computer (i.e. computer which does not have proper security controls in place) connected to the Internet can be compromised in moments. Every day thousands of web pages are discovered as infected. Millions of documents have been involved in data breaches. New attack methods are launched continuously. These are the few examples of threats we are facing daily, and these explains the need of cyber security.

While on the one hand, with the increasing rate and complexity of cyber attacks there is a growing requirement to protect personal and business sensitive information in addition to safeguarding national security, on the other digitalization plays a vital role in the development of information technology (IT) and internet services.

CONCLUSION

In the past 20 years, Cyber Attacks and the Cyber Security have advanced and evolved rapidly due to the technological advancement. Cyber bullying & Cyber Attacks is a serious problem and it needs to be resolved. From the thorough review of above studies it can be concluded that Indian youth's usage of social networking sites is much higher than other countries and as a result the large percentage of population becomes victim of cyber bullying.

It is also found in studies that most of the Indian have no knowledge of Cyber Attacks and therefore government needs to organize seminars, awareness camps for parents, teachers and especially for minor section of the population. Much needs to be done in the front of forming Cyber Bullying & Cyber Attacks laws and on their stringent implementation.

REFERENCES:

1. Trustwave Global Secur ity. Repor t retrieved from: https://www2.trustwave. co m/ rs /8 15- R FM 693 /i ma ge s/ 20 15_TrustwaveGlobalSecurityReport.pdf

2. International Organization for Standardization. ISO/IEC 27032:2012. Information technology— Security techniques— Guidelines for cybersecurity. 2012.

3. Chowdhury A. Recent cyber security attacks and their mitigation approaches–An Overview. In International conference on applications and techniques in information security, Springer, Singapore. 2016; pp 54-65.

4. Passeri P. Cyber Attacks Statistics Paolo Passeri, May 2016. http://www. hackmageddon.com/category/security/cyber- attacks-statistics/. Accessed 07 October 2016

5. Fischer EA. Creating a national framework for cybersecurity: an analysis of issues and options. Technical report. Congressional Research Service. 2005.

6. Beran, T. and Li, Q. (2005), Cyber harassment: a study of a new method for an old behavior‖,Journal of Educa tional Computing Research, Vol. 32 No. 3, pp. 265-277.

7. Grigg, D.W. (2012), ‐Definitional constructs of cyber -bullying and cyber-aggression from a triangulatory overview: a preliminary study into elements of cyber-bullying‖, Journal of Aggression, Conflict and Peace Research, Vol. 4 No. 4, pp. 202-215.

8. Keith, S. and Martin, M.E. (2005), ―Cyber bullying: creating a culture of respect in a cyberworld‖, Reclaiming Children and Youth, Vol. 13 No. 4, pp. 224-228.

9. The Open Web Application Security Project OWASP Top 10—the ten most critical web application security risks. The OWASP Foundation. 2018.

10. Check Point Research Survey of IT Security Professionals, sample size: 443 participants. 2018.

11. Check Point Mobile Threat Research Publications. 2017. Available Online: https://research.checkpoint.com/check-point- mobile-research-team-looks-back-2017/

12. Cyber Attack Trends Analysis Key Insights to Gear Up for in 2019. Available Online: http://www.snt.hr/boxcontent/CheckPointSecurity Report2019_vol01.pdf

13. Check Point C-Level Perspective Survey. 2017. Sample size: 59 C-Level Executives. Available Online:https://www.checkpoint.com/downloads/product-related/report/2018-security-report.pdf

14. Drucker H. Wu D. Vapnik VN. Support vector machines for spam categorization. IEEE Trans Neural Netw Publ IEEE Neural Netw Counc 1999; 10(5):1048–54.

15. Kandpal V and Singh RK. Latest face of cybercrime and its prevention in India. International Journal of Basic and Applied Sciences. 2(4); 2013: 150-156.

16. Wolf G and Pfitzmann A. Properties of protection goals and their integration into a user interface. Computer Networks. 32(6); 2000: 685-700.

17. Cohen LE and Felson M. Social change and crime rate trends: a routine activity approach. American sociological review. 1979: 588-608.

18. Felson M. Crime and everyday life. New York: Pine Forge Press, 1998.

19. Koops B. The internet and its opportunities for cybercrime. in:

20. Dubbudu R. Most number of cybercrimes reported in Maharashtra and Uttar Pradesh. Retrieved from https://factly.in/cybercrimesinindiawhichstatetopsthe chart/.2016

21. Pocar F. New challenges for international rules against cyber- crime. European Journal on Criminal Policy and Research. 10(1); 2004: 27-37.

A Study on Employee Performance Management
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Abstract

In this dynamic and ever exponentially changing global market, nothing can be measured with accuracy because business world made market attributes volatile. In the complex business world, human beings are the most valuable assets. Human resources attitude is also volatile as subjected to many experiences and situations. In such scenario, one needs to measure how Human Resources perform for the purpose of reward, assessment and knowledge. The tools & techniques innovated for measuring human productivity and performance with respect to the required capability, intellect and experience is under an umbrella named Performance Appraisal System. No single Performance Appraisal system can assure the reliability of its results. PAS can only be performed as impartial as possible by choosing the best fit method out of trending ones. Performance appraisal process is a continuous process to monitor the actual performance of the employee i.e. the work done by the employees throughout the year. In this stage careful selection of the appropriate techniques of measurement such as personal observation, statistical reports, and written reports for measuring the performance is needed. This paper attempts to explain PAS followed in Indian IT companies.

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1. INTRODUCTION

Performance can be defined as the actual output delivered to the organization when provided with certain roles and responsibilities within a given period of time. Performance appraisal is evaluation of the performance of an employee for a defined period of time. Any organizations" development is primarily based on its employees" efficiency and attitude towards the organizational goal Neeraj Kumari. These appraisals can be used in deciding the pay, career prospects, training. Performance appraisal is normally given to the employee to the next superior designated person who would observe the employees' efforts, performance and efficiency. Performance Appraisal creates a negative effect on the employees as well as towards the organizational objectives. performance management systems as concerned with directing and supporting employees to work as effectively and efficiently as possible in line with the needs of the organization Coelho. Broadly, performance management, which is continuous process must contain performance appraisal to assess the employees stand in pursuing individual as well as organizational goals. Performance appraisal simply serves as an aid for managers in the process of performance management. Performance Planning: According to T V Rao, "It is defined as systematic outlining of the manager's activities which are expected to undertake during specified period contributing for organizational outcome." The performance of each mentee was given by ratings from their superiors. Significant relations were found between interaction opportunities and both motivation and commitment, and between relationship closeness and both these attitudes Orper.c ,(1997).It is just a beforehand blueprint of future plans to be

implemented and accomplished. Appraiser: A person who undertakes/ is given the responsibility to evaluate in terms of performance, skills and ability of his team (individually) or subordinates or employees at the immediate next & down level of superiority is called appraiser.Appraisee: A person who is being evaluated (knowingly or unknowingly) by the Appraiser is called Appraisee Performance Review Discussion: It is the brainstorming and thought sharing activity performed by appraiser and appraisee. It is also called performance counseling. Here, even the negative feedback must be given in a positive and constructive way by the appraiser.Self-Appraisal: A notes developed by an employee about the tasks and accomplishments performed by to know variations for the last year and now in his performance even if organization does not mandate its requirement. Performance indicators (PIs) and performance measurement are popular topics in management literature nowadays. However, hardly ever is attention paid to the consequences of the relationships that often exist between the different PIs for designing effective, consistent performance management systems for organizations as whole. Flapper.S. Dyadic performance: The role played by the boss in accomplishment of goals of his/her subordinate is often neglected. The role played and actions performed are called dyadic performance. Boss and subordinate are called Dyads.

2. REVIEW OF LITERATURE

❖ Performance management system sets expectations for employee performance and motivates employees to work hard. It involves identifying strengths and weaknesses of employees in their performance as it sets work standards, measure actual performance and gives feedback to employee regarding performance.

David Moy, (2003).

❖ Managing performance is different from performance management. It can ultimately enable services users to initiate and direct some of the improvements they want to see and to take part in the processes of change.Carol A. Rea, David M. Rea, (2002).

❖ Performance management involves the use of both quantitative and qualitative techniques and paying due attention to the human (behavioral) side of the enterprise. Arie Halachmi, (2005).

❖ These requirements challenge performance management to effectively support the decision making process. Business analytics is an emerging field that can potentially extend the domain of performance management to provide an improved understanding of business dynamics and lead to a better decision making. Marten Schläfke, Riccardo Silvi, Klaus Möller, (2012).

❖ Behavioral factors play in the successful implementation and use of performance management systems that are based on critical success factors, key performance indicators and the balanced scorecard André A. de Waal, (2003).

❖ Performance Management is the process through which managers ensure those employee's activities outputs contributes to the organization's goal.D.B.Bagul.

OBJECTIVE:

❖ To study of performance management system

❖ To examine why an appraisal system is important

HYPOTHESIS:

Null hypothesis: There is no impact of appraisal system in the performance Alternate hypothesis: There was an impact of appraisal system in the performance

MATERIALS AND METHOD:

The data for this research paper is been collected from secondary data. Secondary data is the information that already exists. For collecting secondary data ; internet, magazines, journals and books were used.

OBSERVATIONS:

Different dimensions of Performance Management are:

- ❖ Output or result dimension
- ❖ Input dimension
- ❖ Time dimension
- ❖ Focus dimension
- ❖ Quality dimension
- ❖ Cost dimension

Each of these dimensions must be focused in order to secure the best performance (of employee) as well as to evaluate the performance of the employee (by employer). Reward system in any organization play three different but related roles that are: motivating employee, retaining employee and attracting employee. motivation to share knowledge through an intra- organizational social media platform is the desire to help the organization reach its goals and helping colleagues, while financial rewards and advancing one's career were seen as least motivating Vuori.v & okkaren(2012). Ability of organization keeps and hires desirable employee in competitive labor market affected by reward system that is choosing by manage Sufyan mehmood. Appraisals are linked to rewards such as hike in compensation, promotion which demotivates the employees who don't secure them through their performance appraisal sheets. In these terms, 1632). Managers often fail to acknowledge their role in performance management and the fact that their own performance is dependent on the performance of their subordinates Han-jiang Perceived effectiveness of a performance. (The main important aspects of Performance Management are Performance

Improvement and competency building.The building blocks of an appraisal sheet are KPAs and KRAs. KPA means Key Performance Area. (Dr.Lakshmi T and Rajeshkumar S 2018) the stakeholder systems approach represents a holistic approach to performance management through its incorporation of stakeholder perspectives at system design, operation and evaluation stages. Simmons, J. (2008).At the outset, KPAs are broad categories of functions to be performed in job by the employee specifically. Generally, they are given in job description in an elaborate manner. KRAs means Key Resulting Areas. Several functions of KPAs have a KRA, (Trishala A , Lakshmi T and Rajeshkumar S,“ 2018)a much broader term in appraisals. Identifying KPAs and setting quantifiable targets wherever possible is the better way of planning one's performance.

IMPORTANCE OF PERFORMANCE APPRAISAL OR PERFORMANCE MANAGEMENT:

- ❖ Every employee gets the feedback from superior about the work done or tasks completed.
- ❖ Deficiencies of employees are known individually.
- ❖ It is the only prominent tool based upon which promotion, compensation, transfer or layoff decisions are taken.
- ❖ It helps in framing the content required for Human Resource Planning.
- ❖ Generally, employees are counseled after receiving appraisal which benefits them to perform better.
- ❖ Employees are motivated by constructive appraisal formats.
- ❖ Flow of communication improves through the process of Performance counseling
- ❖ It gives a good estimate of employee's potential

and has scope to set future goals.

PERFORMANCE APPRAISAL PRACTICES IN INDIAN IT COMPANIES

TATA CONSULTANCY SERVICES

TCS is a subsidiary of Tata Sons Group. It was found in 1868 by Jamshedji Tata. It generates 70% revenues of Tata Sons i.e. about US$103.5 billion. In 2015, TCS is ranked 64th overall in the Forbes World's Most Innovative Companies. It employs 660,000 people. The performance appraisal for these employees is done as follows: Even TCS has been in the process of transforming from Forced Distribution model to continuous feedback. In forced distribution, every appraise is provided with a goal sheet which contains 15 to 20 goals (based on his/her experience and profile) which are rated out of 5 by appraiser and attendance of project as well as technical trainings. Average score of these ratings is done for aggregate rating. According to the aggregate rating obtained, employee is put into A, B, C or D categories. For suppose, 20 members in a group for a project are to be evaluated, the project leader or project manager rates them and put 2 in A, 6 in B, 8 in C and 4 in D categories based on the rating scores. While rating appraise, it is also observed for them meeting with Subject Matter Experts. The pay hike starts from 0% for D to 12 -14% for A. The hike is based on Gross Pay. This forced ranking model is done twice in a year and pay is increased once in a year by rating and categorization basis. Appraiser for entry level employees is team leader or project manager. Continuous feedback has more transparency when compared to the above model implemented. Appraiser would be willing to share the feedback and appraisee can ask to know the lacking KPAs in the appraisal sheet. Here, the feedback is provided for each quarter of financial year. Feedback here is given by

considering individual ability and not compared with any other which has a better scope for self-improvement of skills and lacking areas of performance.

INFOSYS

Infosys is a multinational corporate providing Business consulting, Information Technology or outsourcing services. Its revenue is US$10.208 billion and profit is US$2.140 billion. The no. of employees is 200,364. These employees were assessed according to traditional. Bell curve method but now trying change to 'iCount' which is explained below:'iCount' is the model developed for appraisals of Infosys' employees. Its CHRO stated that they are striving to inculcate the strength of dialogue and feedback through iCount. As per iCount, employees are rewarded on specific short term targets and are given feedbacks throughout the year. This iCount is brainchild of Vishal Sikka, CEO with concepts of 'new and renew' strategy linking 'design thinking'. Under iCount each employee is individually given feedback throughout the year and not relatively compared with other unlike Bell Curve. Saurabh Govil, CHRO of Wipro stated that the appraisal system has shifted now to develop an employee rather than criticizing the employee by describing what he/she have done.

FINDING & SUGGESTIONS

❖ Be SMART about setting goals.

❖ Not every goal is appropriate for a performance management setting. Goals that aren't clearly defined can become bogs to get stuck in rather than opportunities for success. Following the guidelines to SMART goals can be incredibly helpful.

❖ Offering training for employees

❖ Performance management is an amazing tool to target employee weaknesses, but an organization

needs to be willing to offer training for employees to improve and move forward. The same goes for managers – organizations should offer managers training in the skills that are critical to good leadership – communication skills, listening techniques, how to offer feedback, and how to avoid the pitfalls of reviewing an employee.

CONCLUSION

The challenges brought down by economic liberalization, even HR strategies must match the diverse socio-economic situations accordingly. In present Indian IT companies the HR practices revolve around hiring new talent and retain existing best talent. Performance appraisal is a crucial and critical tool to retain the existing employees TCS employees would always be craving to fall in A category to secure maximum increment. D category employees would be demotivates as they need to wait for one more financial year for increment. TCS focuses on input as well as output dimensions through evaluation of goal sheet.

REFERENCES

1. D.B.Bagul. Research on study of employee appraisal system SRJIS may 2014 vol(1) issue 111

2. Carol A. Rea, David M. Rea, (2002) "Managing performance and performance management: Information strategy and service user involvement", Journal of Management in Medicine, Vol. 16 Issue: 1, pp.78-93,

3. David Moy, (2003)The new performance evaluation methodology and its integration with management systems", The TQM Magazine, Vol. 15 Issue:1, pp.25-29,

4. Arie Halachmi, (2005) "Performance measurement is only one way of managing performance", International Journal of Productivity and Performance Management, Vol. 54 Issue: 7, pp.502-516.

A Study on Equity Analysis of Rubber Industry with Special Reference to GRP Limited

Nisha.B

Abstract

In today‟s world, savings and investment play a dominant role in one‟s life. People save money to buy bread and butter, to pay tuition fees, to meet in emergencies, to buy or construct a dream house, life expectancy, etc1. Also, they would like to invest the saved money in companies in the form of securities like shares, debentures, bonds, Government bonds, etc. with an expectation of returns which may be fixed or variable. People watch the movement of stock of the company through stock exchange. This will create a desire to invest or not to invest in stock exchange.

Keywords: Bonds, Debentures, Money, Shares, Stock exchange.

1. INTRODUCTION

Investing means to invest a certain percentage of saving in a company. It is an exchange of fund from one‟s hand to another one, may be a person, company, an institution, to be used for any productive activity that will yield returns from earnings in the form of: Profit, Interest, Dividend, and Capital appreciation in future.

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Investment, usually be in the form of equity or debt capital of a corporate or non-corporate business unit. Generally, an Investment means conversion of cash or money into a monetary asset or a claim on future money for a return. It is the use of money in the hope of making more money.

RUBBER – AN INTRODUCTION

Rubber is an important product to society. Rubber is a yellowish, elastic amorphous material obtained from the latex or milky sap various tropical plants like the rubber tree. Rubber is of two types – man - made and natural rubber. Each and every one in our society use rubber at home, at work, even at play. Automobiles, air craft, railways and other industries depend on rubber for much purpose. Thus, its presence is omnipotent. It has unique feature: high elasticity. Applications of rubber uses are as follows:

- ❖ Industrial – adhesives, belting, padding, vibration dampening, wire sheathing
- ❖ Construction Industries – Sealants, roofing and moldings
- ❖ Automotives – gaskets, moldings, hoses, belts
- ❖ Consumer – handbags, footwear, toys, door moldings, and many more purpose.

2. OBJECTIVES OF THE STUDY

To analyse the day-to-day fluctuations in share market towards share price of GRP rubber company,

- ❖ To understand movement of money flow.
- ❖ To predict the future trend of share price.

METHODOLOGY

Data Collection

Data consisted secondary data. Secondary data are those data which were already available. Secondary data are those data which are already published and can be obtained from: newspapers, journals,

magazines, websites, Government Records and Reports, Company profile, etc. In the present study, secondary data was used and is collected through websites of stock exchanges.

PERIOD OF THE STUDY:

The study period was from February 2019 to May 2019.

TOOLS AND TECHNIQUES OF THE STUDY:

In the present study, to identify the movement of share price and to predict the future share price, various tools and techniques applied were as follows:

- ❖ Mean/Average
- ❖ Standard Deviation
- ❖ Variance
- ❖ Coefficient of variance
- ❖ Money Flow Ratio
- ❖ Money Flow Index
- ❖ Trend Analysis

OPERATIONAL DEFINITION:

Share Price: A share price is a price of standalone stock of one particular company that can be saleable. In simple term, it is defined as the cost of purchasing a security on a stock exchange.

Share Price Index: Share price index is defined as „a number based on the current market price of a certain group of shares on a stock exchange, such as the Bombay Stock Exchange, National Stock Exchange, etc.

Money Flow Ratio: Money flow is the ratio between positive money flow and negative money flow.

Money Flow Index: Money Flow Index (MFI) is a sway used on both price and volume to gauge purchasing and selling pressure. It is otherwise called as Relative Strength Index (RSI), which compares the proportion of recent profit to recent losses of stock of a particular company. MFI begins with the regular price

for every period. Financial flow is positive when the common price increases (buying pressure) and negative when the average price decreases (selling price). A degree of positive and negative financial flow is then connected to a RSI equation to make sway that moves somewhere around in the range zero to one hundred. The following are the steps to calculate Money Flow Index :Typical Price = (Highest Price + Low Price + Close Price) / 3

Money Flow = Typical Price x Volume

3. REVIEW OF LITERATURE

1. S.Saravanakumar, S. Gunasekaran and R.Aarthy (2011) analysed that the increasing return in capital market motivates the investors to invest more and more for their highly returns and at the same time day traders in share market needs to take an advantage in bullish and bearish market conditions by holding long/short positions. They argued that the investors may prefer secondary market than the primary market and cash market is mostly preferred than the derivatives market because of high risk for higher return derivatives market is preferred than the cash market.

2. Sanjay sehgal, Sri vidya subramaniam and Laurence Porteu DE LA Morandiere (2012) disproves the statement higher the risk higher the return and proves that the investors who invest in low volatile stock earns more than that of high volatile stocks.

3. Shyam lal Dev Pandey and Gopi Prachetas (2012) Proves the existence of inefficiency in Indian stock market that is low volatile stock offers higher rate of return than high volatile stocks.

4. Sarbapriya(2012) proves that, Inorder to avail tax benefits investors may dispose the loss in the month of march by making into shares.

5. Manish R.Pathak (2013) States that the day of the week and month of the year effect is not noticed in

Indian stock market due to increased stock volatility, increased awareness among Indian investors.

4. COMPANY PROFILE

GRP Limited

GRP Ltd, established in 1974, is among the most recognised manufacturer of reclaimed rubber from used tyres, upscaled polyamide from nylon waste and engineered products die-cut from end-of- life tyres. The company operates 4 business verticals (Reclaim Rubber, Industrial Polymers, Custom Die Forms, Retreading) with 7 manufacturing units across India with an installed capacity to handle 75,000 MT per annum to service the needs of the global polymer industry and help save valuable resources of the planet. GRP has an Integrated Approval for ISO 9001: 2008, ISO 14001:2004 and BS OHSAS 18001:2007 for all its manufacturing units. Reclaim Rubber products are also all REACH Certified for EU Zone. GRP is a publically traded company listed on the Bombay Stock Exchange since four decades. It has a C.A.G.R. of 25% over the last ten years - a testimony to its strong customer relationships built over many years of supplying high quality, made-to-spec products and close collaboration delivering enhanced value. GRP looks to the future with confidence as it believes that its continued investment in innovation, product quality, people friendly HR practices and strong CSR agenda is creating a sustainable business for its multiple stakeholders.

5.   ANALYSIS AND INTERPRETATION

Monthly Average Price of GRP Limited: The following table shows the movement of share price of GRP RUBBER LIMITED for each month for the year: 2014 – 15, 2015 -16, 2016 – 17, 2017 – 18 and 2018 – 19:

Month /Year	2015-16	2016-17	2017-18	2018-19
April	1118.10	1051.81	1695.52	1280.44
May	1051.71	1108.79	1429.58	1226.30
June	1025.51	1073.96	1403.11	1198.04
July	1037.86	1151.80	1344.81	1190.88
August	1052.24	1368.79	1261.57	1202.43
September	968.42	1409.13	1240.80	1169.49
October	947.15	1534.85	1343.66	1086.14
November	963.17	1487.46	1331.07	1115.89
December	990.02	1442.27	1611.37	1035.71
January	937.47	1556.09	1367.22	1017.81
February	928.07	1585.1	1235.51	995.35
March	987.19	1611.38	1235.51	1089.70

Source: Calculated from Secondary Data

INTERPRETATION

The above table showed the average share price of GRP Limited Company per month for five years, i.e. year 2015 -16, 2016-17, 2017-18 and 2018-19, calculated by considering the day-to-day fluctuations in share price in a stock market. In the year 2017 – 18, monthly average share price was found decreasing from the month April to September, increased in the month October and decreased in November, increased in December and decreased in January and no change in February and March. For the 2018 – 19, monthly average share price showed a gradual decrease indicating bearish trend.

MEAN OF SHARE PRICE OF GRP LIMITED:

The following table shows the mean of share price of GRP RUBBER LIMITED for the year 2014 -15, 2015 – 16, 2016 – 17, 2017 -18 and 2018 - 19:

Year	Mean of share price of GRP Limited
2015 -16	1000.57
2016 -17	1365.12

2017 - 18   1374.98

2018 - 19   1134.01

Source: Calculated from Secondary Data

INTERPRETATION

The mean of share price of GRP Limited revealed that the mean share price was Rs. 1365.12 in the year 2016 -17 which was higher when compared to the year 2015-16. In the year 2017 -18, mean value increased to Rs. 1374.98 and decreased to Rs.1134.01 in the year 2018 - 19.Standard Deviation, Variance and Coefficient of Variance of Share Price of GRP Limited:

The following table showed the standard deviation, variance and coefficient of variance of GRP RUBBER LIMITED for the following year, 2014 – 15, 2015 – 16, 2016 – 17, 2017 – 18 and 2018 – 19:

Year	Std Deviation	Variance	CoV
2015 -16	57.14	3265.84	0.057
2016 – 17	211.34	44668.04	0.15
2017 – 18	146.48	21458.99	0.10
2018 – 19	90.55	8200.77	0.07

Source: Calculated from Secondary Data

INTERPRETATION

Standard deviation denotes the deviation in share price during the five years 2015, 2016, 2017, and 2018. It was found that there are more deviations in the price movement of share in the year 2015 -16, 2016 -17, 2017 -18 and 2018 -19. It was higher in the year 2018-19 and lower in year 2015 -16. Variance in share price was high in the year 2016 – 17 and was low in 2015-16. The coefficient of variance denotes that the share price was subject to greater variation during the

year 2015 -16 and consistent in the year 2018 -19. Money Flow Index of GRP Limited:

The following table showed the money flow index of GRP RUBBER LIMITED for the following years

2014 -15, 2015 – 16, 2016 – 17, 2017 – 18 and 2018 - 19:

Month /Year	2015-16	2016-17	2017-18	2018-19
April	1118.10	1051.81	1695.52	1280.44
May	1051.71	1108.79	1429.58	1226.30
June	1025.51	1073.96	1403.11	1198.04
July	1037.86	1151.80	1344.81	1190.88
August	1052.24	1368.79	1261.57	1202.43
September	968.42	1409.13	1240.80	1169.49
October	947.15	1534.85	1343.66	1086.14
November	963.17	1487.46	1331.07	1115.89
December	990.02	1442.27	1611.37	1035.71
January	937.47	1556.09	1367.22	1017.81
February	928.07	1585.1	1235.51	995.35
March	987.19	1611.38	1235.51	1089.70

Source: Calculated from Secondary Data

INTERPRETATION:

Money flow ratio 15.98 was high in the year 2015-16 indicating there was money flowed out was up to 15.98 per cent out of total money inflow. It was low 2.09 per cent in the year 2018 - 19.

TREND ANALYSIS OF GRP LIMITED:

The average share price of four years, i.e., 2015 to 2018 have been considered for the prediction of trend and future value of the annual average share prices of GRP Limited. The trend analysis is also used to observe the direction of movement or changes of selected variables.

Year	GRP Limited
2014	-
2015	1000.57
2016	1365.12
2017	1374.98
2018	1134.02
2020	1362.23
2025	1567.32
2030	1772.41

Source: Calculated from Secondary Data

INTERPRETATION

From the above table, it can be seen that there was increasing trend in the average share price of GRP Limited for the year 2016 and 2017 and decreasing trend for the year 2018. Annual average share price for the year 2020 is Rs. 1362.23, for the year 2025, it is Rs. 1567.32 and for the year 2030, it is Rs. 1772.41.

FINDINGS, SUGGESTIONS AND CONCLUSIONS

MONTHLY AVERAGE PRICE:

In the year 2017 – 18, monthly average share price was found decreasing from the month April to September, increased in the month October and decreased in November, increased in December and decreased in January and no change in February and

March. For the 2018 – 19, monthly average share price showed a gradual decrease indicating „bearish" trend.

MEAN OF SHARE PRICE:

The mean of share price of GRP Limited revealed that the mean share price was Rs. 1365.12 in the year 2016 -17 which was higher when compared to the year 2015-16. In the year 2017 -18, mean value increased to Rs. 1374.98 and decreased to Rs.1134.01 in the year 2018 - 19.

STANDARD DEVIATION, VARIANCE AND COEFFICIENT OF VARIANCE:

According to the result of Standard Deviation, it was found that there are more deviations in the price movement of share in the year 2015 -16, 2016 -17, 2017 -18 and 2018 -19. It was higher in the year 2018-19 and lower in year 2015 -16.

Variance in share price was high in the year 2016 – 17 and was low in 2015-16. The coefficient of variance denotes that the share price was subject to greater variation during the year 2015 -16 and consistent in the year 2018 -19.

MONEY FLOW INDEX:

Money flow ratio 15.98 was high in the year 2015-16 indicating there was money flowed out was up to 15.98 per cent out of total money inflow. It was low 2.09 per cent in the year 2018 - 19.

TREND ANALYSIS:

There was increasing trend in the average share price of GRP Limited for the year 2016 and 2017 and decreasing trend for the year 2018. Annual average share price for the year 2020 is Rs. 1362.23, for the year 2025, it is Rs. 1567.32 and for the year 2030, it is Rs. 1772.41.

SUGGESTIONS

❖ Consistent monetary policy is required to keep up the homogeneity of share price, as it is affected by

macro-economic factors such as interest rated, GD, inflation and supply of money.

❖ Entry norm for newly established companies for accessing the share market should be made stricter.

❖ Financial literacy and investor awareness programme should be conducted at various centres more frequently to bring in new investor into the share market, make them participate in the programme, so that idle money, if any, can be converted as protective money.

❖ An institutional arrangement is required to protect small investors against monetary losses. This will increase the confidence of investor and would significantly reduce time and moneyloss.

CONCLUSION

Investing money into a capricious, unsound and irrepressible factor was more risky. Like a lottery draw, the success of investment through stock exchange partly attributed to luck. Many people have lost their huge amount of money by investing in securities due to their poor decision on investment. Recently, investors with shares in financial institutions, manufacturing and Information Technology companies which were once a fairly stable investment, have incurred high losses at the time of financial crisis. Investors must understand that risk was an intrinsic part of investing, although, attractive benefits to successful financial investment. Only an intelligent investment decisions, an investor, by investing can earn significant capital gains, income stability and safety of principal amount.

REFERENCES

1. Divya Priya, B., et al. (2019). Rural Customer''s Awareness towards Post Office Saving Scheme (POSS) in Coimbatore District. International Journal of Research and Analytical Reviews, 6(1), 63 – 71.

2. S. Saravanakumar, S. Gunasekaran and R. Aarthy (2011), "Investors Attitude towards Risk and Return Content in Equity and Derivatives", Indian Journal of Commerce & Management Studies, Vol. 2 Issue 2, pp.1-11.

3. Sanjay Sehgal, Srividya Subramaniam, and Florent Deisting (2012), "Accruals And Cash Flows Anomalies": Evidence From The Indian Stock Market Investment Management Financial Innovations Vol 9 Issue 4 2012.

4. Sarbapriya (2012), "Investing Seasonal Behaviour In The Monthly Returns": Evidence From BSE Sensex Of India Advances in Asian Social Science Vol 2 No 4 (2012).

5. Manish. R. Pathak (2013), "Stock Market Seasonality":A Study Of The Indian Stock Market (NSE) PARIPEX – Indian Journal of Research Vol 2 Issue 3 March (2013).

WEBSITES

1. https://commerce.gov.in/writereaddata/upload edfile/MOC_ 636871123490373426_National percent20Rubber per cent20Policy per cent202019.pdf

2. www.m.ststisticstimes.com/rubber

3. https://www.ibef.org/download/Rubber_Plasti cs_220708.p df.

A Comparative Study of Hierarchical Cluster-based protocol in Wireless Sensor Network

G.Saraniya[1], A.Gokilavani[2]

Abstract

Wireless Sensor networks plays a vital role in the recent technologies.WSN consists of group of sensor nodes and monitors the environment for application without having any central controller. The sensor networks consist of sensed data, which may be depending upon the applications in real time. The networks transfer the large amount of data, broadcast messages from one node to another. These Application required high performance on the network without affecting the resource constraints. Wireless devices are having limited energy because nodes are operated by batteries. The main challenge in the WSN is the durability of the energy in the nodes. By using the protocol the energy of the nodes can be stable and reduce the error prone transmission of sensored data. In this paper, the Analysis of LEACH (Low Energy Adaptive Clustering Hierarchy) Protocol and TEEN (Threshold Sensitive Energy Efficient Sensor Network) protocol to conserve the energy of the nodes in the WSN.

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Wireless sensing element networks have emerged as a promising tool for observance (and probably actuating) the physical world, utilizing self-organizing networks of powered wireless sensors that can sense, process and communicate. The necessities and limitations of sensing element networks build their design and protocols each challenging and divergent from the wants of ancient Internet design. A sensing element network is a network of many tiny disposable low power devices, known as nodes, which are spatially distributed in order to perform an application- oriented international task.

Keywords: LEACH, Nodes, TEEN, Sensor Network

1. INTRODUCTION

A Wireless Sensor Network is surrounded by the network of small sensor nodes communicating among themselves using signals, and deployed to sense and monitor the real world environment. Wireless Sensor nodes are called motes. [1]
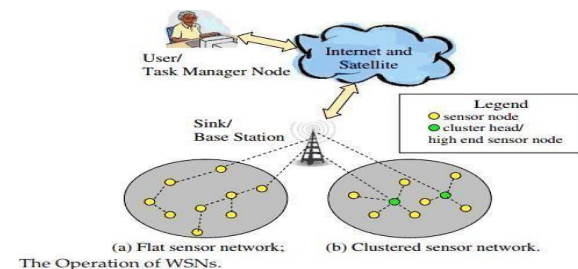
Figure 1: Operations of WSN

A WSN is a network consisting of numerous sensor nodes with sensing, wireless communications and computing capabilities. These sensor nodes are isolated throughout the environment to sense the

physical world. The sensed data can be collected by sink nodes which have accesses to infrastructure networks like the Internet. Finally, an end user can remotely fetch the sensed data by accessing infrastructure networks. The sensor nodes either form a flat network topology, multi-hop routing, or a hierarchical network topology where more powerful or mobile relays are used to collect and route the sensor data to a sink.[3]

1. OBJECTIVES

❖ Low Node Cost
❖ Low Power Consumption
❖ Self-configurability
❖ Scalability
❖ Adaptability
❖ Reliability
❖ Fault Tolerance
❖ QoS Support
❖ Communication Channel
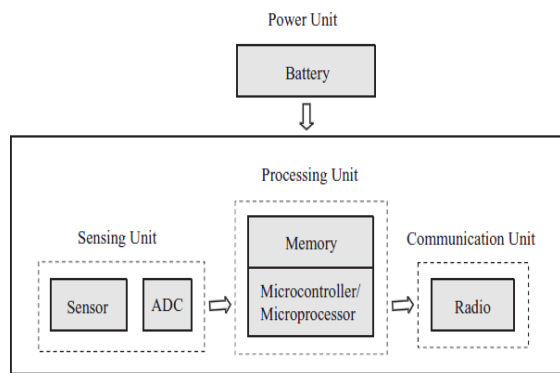❖ Utilization
❖ Security

2. SENSOR NODE STRUCTURE

Figure 2 : Sensor Node Structure

A sensor node normally consists of four basic components

❖ A sensing unit
❖ A processing unit
❖ A communication unit

❖ A power unit

Figure 2.1 Sensirion SHT11

Figure 2.2 Acoustic sensor

Devices are capable of detecting change:

❖ Temperature
❖ Pressure
❖ Humidity
❖ Sound

3. APPLICATIONS

Environmental Monitoring

❖ Habitat Monitoring
❖ Air or Water Quality Monitoring
❖ Hazard Monitoring
❖ Disaster Monitoring

Military Applications

❖ Battlefield Monitoring
❖ Object Protection
❖ Intelligent Guiding
❖ Remote sensing

Health Care Applications

❖ Behavior Monitoring
❖ Medical Monitoring

Home Intelligence

❖ Smart Home
❖ Remote Metering

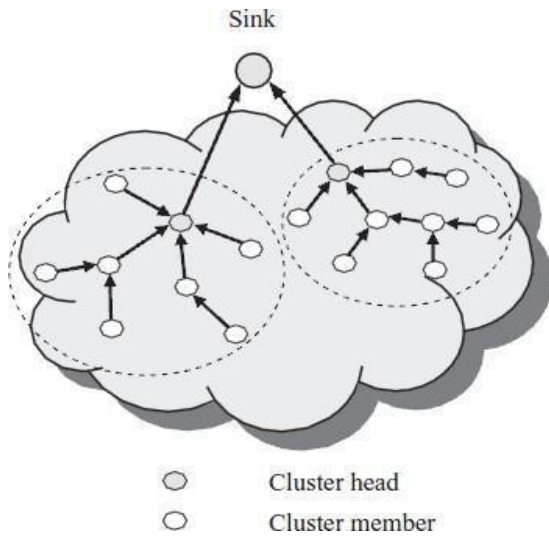## 4. HIERARCHICAL ARCHITECTURE

Figure 3 Hierarchical Architecture

The hierarchical Architecture is a tree like structure. The main functionality hierarchical approach is that it controls the centralized server in the distributed manner. It consists of cluster head and cluster member. The cluster head gathered the information from cluster member and sent the messages to the sink. Each node is considered as cluster member who have a interconnection with the other cluster member. In the Wireless Sensor Network, Hierarchical protocol has the capable to conserve the energy of the cluster head.
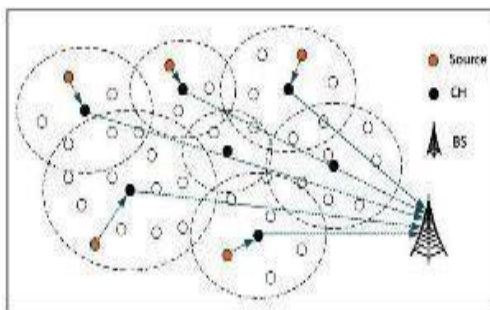
LEACH

Figure 3. 1 LEACH

LEACH is the cluster based hierarchical protocol, which includes distributed cluster formation. LEACH randomly selects a few nodes as cluster-heads (CH)

and rotates his role to evenly distribute the energy load among the sensor network. In LEACH, the cluster heads comprises data arriving from nodes that belongs to the respective cluster Member and sends the aggregated packet to Base station (BS). [4].This protocol is based upon Multi-hop communication Clustering Algorithm,[6] the energy consumption of cluster heads consists of the energy receiving , aggregating and sending the data from their cluster members, known as intra-cluster energy consumption and the energy for forwarding data for their neighbor cluster heads known as inter-cluster energy consumption. The main Functionality of LEACH protocol is to decrease the number of transmitted messages to the sink and the transmission distance of sensor node.

TEEN

TEEN is an energy efficient hierarchical clustering protocol which is suitable for time critical Applications. The CH sends aggregated data to the next higher level CH until data reaches the sink. TEEN is designed for reactive networks, where the sensor nodes react immediately to sudden changes in the value of the sensed attribute. [5] Sensor nodes sense the environment sequentially, but data transmission is done frequently and this helps in energy efficiency. This protocol sends data if the attribute of the sensor reaches a Hard Threshold and a small change the Soft Threshold.
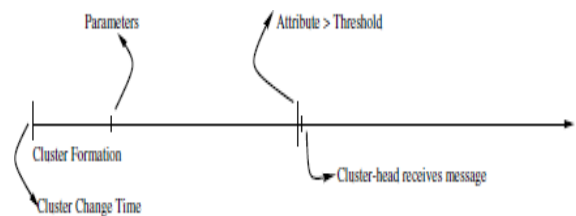

Figure 3. 2

A.   Hard Threshold(HT)

A Cluster member only reports the data to cluster head by switching in its transmitter, only if the data values should reach to the threshold value.

B.　　Soft Threshold(ST)

A Cluster member only reports the data to cluster head by switching in its transmitter, only if the data values should at least reach to the threshold value.

5. ANALYTICAL STUDY

In this Section, We compare the performance of two Hierarchical Cluster-based protocol LEACH and TEEN protocol. In this Comparative Study, we analyze the Energy Conservation of this Protocol. LEACH can processes all the data from all the cluster head nodes in sink, which means it does not have a multi-path and Cluster head has to idle when one Information reach the Base Station to send the other information. TEEN Protocol is well suited for time critical applications and quite efficient in terms of energy consumption and response time. This Protocol has the methodology of Throughput which makes the cluster nodes have a time limit to send the data to the base station. It allows the user to control the energy consumption and accuracy to suit theapplication.
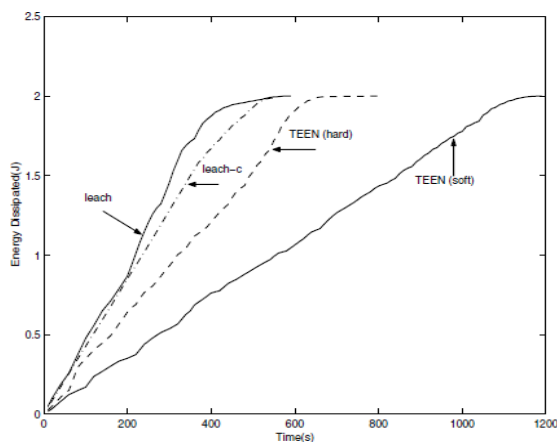

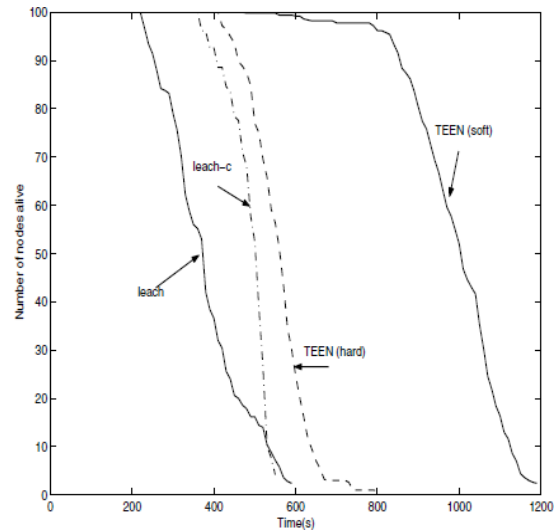Chart 1: Comparison of AverageEnergyDissipation

Chart 2 : Comparison of nodes alive

By the Analysis of these two Protocols, LEACH protocol has less energy conservation in when compare to TEEN protocol.

CONCLUSION

WSN are a widely applicable, major emerging technology. They bring a whole host of novel research challenges pertaining to energy efficiency, robustness, scalability, and self-configuration. These challenges must be tackled at multiple levels through different protocols and mechanisms. LEACH protocol and TEEN protocol capable to decrease the error prone message to increase the durability of Wireless devices. TEEN protocol is more effective when compare to LEACH protocol.In future, the emerging Wireless technology may be arise by the effective usage of the Hierarchical cluster-based Protocol

REFERENCES

1.　　Wendi Rabiner Heinzelman Anandha Chandrakasan and Hari Balakrishnan. An Application specific protocol Architecture for Wireless microsensor Network IEEE TRANSACTION ON WIRELESS COMMNICATION VOL,1, NO. 4, OCTOBER 2002.

2. Hongwei Zhang and Anish Arora. GS3: Scalable Self-configuration and Self-healing in Wireless Networks. In Proceedings of the Twenty-First Annual Symposium on Principles of Distributed Computing (PODC 2002), pages 58–67, July 2002

3. Braginsky and D. Estrin, "Rumor Routing Algorithm for Sensor Networks," in the Proceedings of the First Workshop on Sensor Networks and Applications (WSNA), Atlanta, GA, October 2002

4. Baiping Li1, Xiaoqin Zhang. Research & Improvement of LEACHProtocol for Wireless Sensor Network. International Conference on Information Engineering, 2012

5. A.Manjeshwar and D.P. Agarwal, "TEEN : A Protocol for Enhanced Efficiency in Wireless Sensor Networks", in the Proceedings of the 1st International Workshop on Parallel and Distributed Computing Issues in Wireless Networks and Mobile Computing, San Francisco, CA, April 2001.

6. Keerthana.V(2017)" A Survey paper on Security protocols of Wireless Detector Networks" International Journal for Research in Applied Science & Engineering Technology (IJRASET), Volume 5, Issue IX, ISSN:2321-9653.

Smart Farming for Wireless and Broadband Coverage for Sensor Network

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Abstract

This paper deals with block chain algorithm, by which in increasing population which includes scarcity of food production by farmers in which it leads to increase in rate of food products. So, to solve this problem we identify that Drones are used in farming field and controlled by human for each and every process. But some of the technical networking barriers exist by which it leads to networking issues to solve this we use Blockchain algorithm in which even though in rural and urban areas where network lacks it does not the process of communication and work continues smoothly.[2]

1. INTRODUCTION

Increasing population leads to scarcity of food, so to solve this problem now-a-days "SMART FARMING" is used in farming to increase the production of food for the increasing population. It is mainly for crop-yielding, water spraying, monitoring nutrient level in food, growth of plants weeding and harvesting plants. But it's monitored using sensor networks for all the working principle

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sensors are placed and they are monitored using Internet, Intranet, Bluetooth, Wi-Fi and so on., using Internet of Things(IoT) and Information Communication Technologies(ICT). But without a network connection nothing is possible in this process. But in rural places network coverage in all places is all places is not possible because of farming fields are calculated in acres. So, to solve networking issues in smart farming we use "BLOCKCHAIN ALGORITHM", by using this algorithm we could able to solve the networking problems that occurs in smart farming.Even though in United Kingdom, Germany, Netherlands and Spain use Smart Farming technologies such as Agri-Food Production, Farming 4.0, Dike Monitoring project, Viticulture there exist some technical barriers are as follows.[4]

Fig-1: Monitor smart farming in the field

KEYWORDS: Sensor communication, block chain algorithm, consensus algorithm, decentralized network.

2 .TECHNOLOGY DRIVERS AND BARRIERS

- ❖ M2M based monitoring and tracing becoming more mainstream across industries.
- ❖ Improving data management technologies to manage tidal wave of M2M data.
- ❖ Rural wireless and broadband coverage patchy.

❖ Standards for sensors networks and dotcoms still under development.

❖ Farmers becoming more familiar with everyday IT use.

❖ Specialist agriculture software still maturing.[1]

3. METHODS AND MATERIAL

WHY WE USE BLOCKCHAIN ALGORITHM IN SMART FARMING?

❖ Blockchain algorithm deals with distributed communication system, it's used to transmit a communication gap between machine to machine communication. Eventhough any internet , intranet,bluetooth,etc does not establish its connection. It is decentralized.

❖ We use Consensus –Consensus may be a process of ensuring that each one the various users during a block chain come to an agreement regarding the present state of blockchain. There are several consensus mechanisms that are used by different block chains to achieve consensus [5].

Fig 2: Smart farm using Blockchain algorithm

3.1 CONSENSUS BLOCK CHAIN ALGORITHM

Blockchain is a distributed decentralized network that provides immutability, privacy, security, and transparency. There is no central authority present to validate and verify the transactions, yet every transaction in the Blockchain is considered to be completely secured and verified. This is possible only due to the presence of the consensus protocol which may be a core a part of any Blockchain network. Thus,

a consensus algorithm aims at finding a common agreement that is a win for the entire network.

It deals with following,

1.Proof of Work(PoW)

2. Pracitical Byzantine Fault Tolerance(PBFT)

3. Proof of Stake(PoS)

4. Proof of Burn(PoB)

5. Proof of Capacity(PoF)

6. Proof of Elapsed Time (PoET) [2]

3.1.1   PROOF OF WORK (PoW)

This deals with amount of work that gets completed or done by drones. It reduces the probability of work that are attacked by any foreign key by 51% of rate. The community-bond of the miners of PoW is extremely strong, thus the possibility thus it is centralized.

3.1.2 PROOF OF STAKE (PoS):

It depends on stake or capacity that are remaining left out or how much it already has on it. It is strong for the farmers community for maintain the stake capacity it is more decentralized.
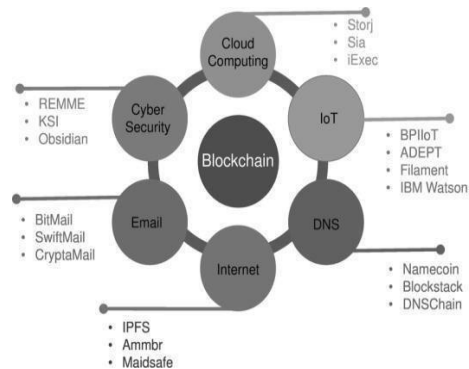
Fig 3: Working of Block chain algorithm

3.1.3   PRACTICAL BYZANTINE FAULT TOLARANCE (PBFT):

PBFT is mainly focuses on the state machine. It helps in replicates the system but the main problem in it is Byzantine Moreover, all the nodes inside the system gets arranged in a specific order. One node is selected

as the primary one, and others work as the backup plan.

3.1.4 PROOF OF BURN (PoB):

Burning means loss of data. As block chain algorithm is private there is no security for any data that it has. But in farming data's are not required any operation that it done in a part of storing a data. So, any attack such as cyber-attack is not an issue.

3.1.5 PROOF OF CAPACITY (PoC):

The Proof-of-Capacity can create a block in just four minutes whereas the Proof-of-Work takes ten minutes to do the same. By creating a Block the work time gets reduced. So a process within a network is contained in a block of code, so each can be accessed where ever it is required.

3.1.6 PROOF OF ELAPSED TIME (PoET)

PoET is one of the best consensus algorithms. This algorithm is mainly used for granting permission to access a particular network, in order to save time and work goes on continuous progress.

3.2 ADVANTAGES IN PROPOSED SYSTEM

As it is block chain is Decentralized, its works even the network issues exist, because rural areas do not get coverage of Network throughout the day.

Due to this sensors and drones are connected and communication even if network lacks the communication does not affect and the respective work goes on smoothly in an order that is assigned.

Blockchain algorithm is private even though it does not affect the process at any cost because faring does not require data it requires decision making at the right time.

4. DRAWBACKS WHILE USING BLOCKCHAIN:

As the Blockchain algorithm the data are stores private there is no security for data's that are precidicted by sensors. But in SMART FARMING data are not required. So let us move on to blockchain algorithm.
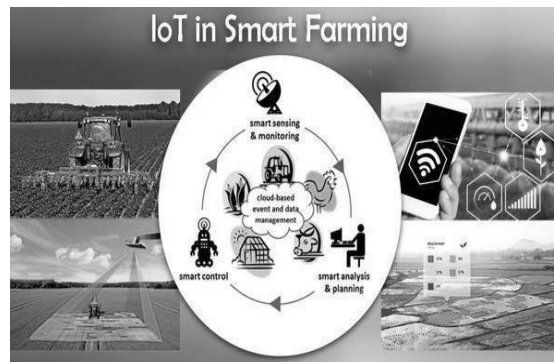

Fig 4: Smart Farming using IoT in Block chain algorithm

CONCLUSION

In this paper, the blockchain algorithm could be able to solve the technical barriers in SMART FARMING in rural area due lack of network does not affect the farming process such as crop-yielding, water spraying, monitoring nutrient level in food, growth of plants, weeding and harvesting plants. It does not require any Internet, Bluetooth, ZigBee, Satellite communication and so on, It does affect the sensor's process and it does not reduce the lifetime of the sensor. Due to this sensor transmits the data very quickly in network.

REFERENCES

1. Migdall S, Klug P, Denis A, Bach H (2012) The additional value of hyperspectral data for SmartFarming. IGARSS2012 Munich, IEEE 2012 International Geoscience and Remote SensingSymposium Proceedings.Pages: 241 to 249 .

2. MauserW, Klepper G, Zabel F, Delzeit R, Hank T, CalzadillA(2015) Global biomass production potentials exceed expected future demand without the necessity for cropland expansion. Nat Commun6:8946..https://doi.org/10.1038/ncomms9946 .Pages 348 to 356

3. Hank T, Bach H, Mauser W(2015) employing a far off sensing supported hydro-agroecological model for field-scale simulation of heterogeneous crop growth

and yield: application for wheat inCentral Europe. Remote Sens 7:3934–3965.pages 252 to 259

4. Heike Bach and Wolfram Mauser(2018) Sustainable Agriculture and Smart Farming© The Author(s) 2018 P.-P. Mathieu, C. Aubrecht (eds.), Earth Observation Open Science and Innovation,ISSI Scientific Report Series 15, Pages 261 to 269 https://doi.org/10.1007/978-3-319- 65633-5_12

5.Previews on block chain algorithm and consensus: https://www.google.com/search?sxsrf=ACYBGNTzY pItTvesOvhoJclpsKrAoRmBfg%3A1577875097043& source=hp&ei=mXYMXuxJ5Mfj4QI4Y2gCA&q=blo ckchain+algorithm&oq=bloc&gs_l=psyab.1 0.35i39l3 j0i67l3j0l3j0i131.2970.5569..7162 ..2.0..0 216 670.0j3 j1......0....1..gws-wiz ....10 35i362i39.

Predictive Analysis by Studying Customer Behavior and Tools for Framing Marketing and Automation Strategies to Avoid Customer Churn

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Abstract

There has been an increase in the usage of the data nowadays. There has been an exponential growth of data across industries and the amount of the interactions among the consumers have spread across the social media, mobile data, Information Technology, purchase of historical data, localization, data owned by the companies, and so on. The data is available everywhere. Behavioral insights of the customers are highly tracked thorough the connected devices, mobiles etc., from where all the actions, reactions, interactions, interests, shares, likes, hash tags are all being closely monitored and the data is recorded which makes it easily and readily for analysis. Mostly consumers are individuals or a company and the business are made by people. The consumers are the source of creating incessant generators of data and tend to generate the data that is highly de- structured based on the behavior.

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In the current circumstance the data that is already available makes it easy for the marketing personals and they tend to use the tools for automating marketing activity and with the wide spread data they make use of predictive analysis for targeting customers and use the same for the betterment of the business.

Business growth is attained and makes it good for the organizations for marching towards a better comprehension of consumers. The tools, researchers and the decision makers will be in better position for evaluate alternative choices among the consumers. The marketing intelligence alongside the business intelligence tools make the applications market oriented and they collect the consumer data and analyze then in order to get a lead among the consumers. There are data mining techniques widely available which allow to reach the objective of studying, extracting or detecting models to predict consumer behavior on a large database.

This paper investigates the present and the future scenarios in reductive analysis that is consumer centric and will discuss on the best tools available in order to discover previously unknown and potentially useful relationships, patterns and information, within large databases based on the proposed framework for identifying the consumers who are likely tochurn.

INTRODUCTION

Marketing refers to identifying and satisfying human and social needs. Marketing management is all about the business to well verse on with the art and science of the choice of the target markets,

maintenance of existing customers and growth of customers through the creation, distribution and communication of a higher value. Social definition emphasizes marketing in society.

THEORETICALFRAMEWORK

Action Fields: Marketing

Marketing always affect certain entities and they in particularly impact the following entities at high level

Goods	This refers to the physical items or products.
Services	Refers to the intangible services and related activities in order to satisfy consumer needs.
Events	Refers to the events such as exhibitions, Fairs, and Campaigns etc., On simple terms refers to the promotional activities
Experiences	Refers to different goods and services.
People	Refers to the individual or group of Consumers.
Places	Refers to the spaces for economic Developments.
Property and Administrative rights	Refers to the premises or physical or intangible assets. Properties can be bought and sold, this requires a marketing team or activity compliant with administrative laws.

Organization	Refers to the company or a firm.
Information	Information have become the most important part of the everything and anything. They are essentially increasing in knowledge and should be analyzedin the regulation context.

Stakeholders

Firstly, the organizations and the decision makers are the primary stakeholders. They have privilege for analyzing potential customers through the data that is available on the cyber space. Marketers are the ones who are solely responsible for meeting out and cater to the market demand. Most often they try to influence the intensity, the time and the composition in order to achieve their objectives.

Market demand might be classified into several status with their own characteristics.

Latent demand: Consumers are affected by a strong need that can be satisfied using existing products on the market.

Irregular demand: Consumers generate a variable demand (i.e.seasonal).

Declining demand: Consumers reduce the frequency of purchase and quantities consumed. Alternatively, they completely stop the acquisitions

Negative demand: consumers are averse to the product and would even be willing to pay to avoid it.

Unexacting demand: consumers show no interest or indifferent towards the product.

Full demand: Consumer requires goods or services equal to the volume of total offer.

Dangerous demand: Consumers are attracted by products that implies negative consequences

Markets are the physical places where sellers and buyers meet for the sale and purchase of goods.

Economists describe as "a set of buyers and sellers who transact on a product or a class of products". About the main types of markets, we distinguish: **Business Markets**, aimed at companies where companies sell goods and services for other companies.

Global markets, companies operating in the global market operate in a broad context where international management and investments are carried out.

Consumer markets, in where companies sell mass consumer goods and services, investing heavily on product and package development, guaranteeing their availability in sales and supporting sales through effective communications and reliable service.

Markets of non-profit organizations and the PA, in which for several nations, requirements are anchored to public procurement.

Key Marketing Concepts

Relational Marketing: Relational Marketing aims to build and maintain long-term relationships with the customer. Four categories are fundamental: customers, employees, marketing partners, members of the financial community.

Some companies have also developed a set of activities and specific processes for the analysis, management and continuous improvement and enhancement of relationships with customers known as CRM, Customer Relationship management. The professionals in CRM are able to process information and estimate the value of the customer in its commercial life cycle CRM's consequently manage to design the market offers and prices in order to achieve positive economic results throughout the life cycle customer's commercial.

Integrated Marketing: In the Integrated Marketing, marketing activities are designed and implemented, aimed at communicating and transferring

value to customers so that the whole is greater than the sum of its parts.

Internal Marketing: Internal marketing is an element of holistic marketing and consists in hiring, training and motivating capable employees, who are willing to serve the company's clients in the best possible way. In other words, to develop and maintain relationships with customers, it is important that the whole organization behaves consistently with the company's vision and strategy.

Performance marketing: Performance marketing refers to the understanding of financial and non-financial returns, marketing programs in a broad perspective: marketing executives are in fact always careful to evaluate performance using a complex system of indicators (KPI – Key performance Indicators).

Therefore, in addition to sales revenues, we evaluate what happens to the market share, the rate of abandonment of customers (churn rate), their satisfaction and other measures that can come to consider legal, ethical, social and environmental effects.

Marketing Automation -Perspective

As we know from literature, from consumer practice and from experiences, today the customer contacts companies indirectly and later. In this context, companies must listen to the consumer's digital behavior or not within the domains they own (such as the website or the social page, or the physical stores) and capture his attention by proposing content that is always interesting to him.

Marketing Automation is a software category that simplifies, automates and measures marketing and sales activities in order to generate more contacts, close more offers in less time and keep its end customers activefor

longer, turning them into satisfied customers (loyal customer).

Automating and measuring are the most common keywords when it comes to marketing automation. For automation we refer to the ease of creation and management of 1: 1 multichannel communication campaigns such as email, SMS, social, etc., with personalized content depending on the individual opportunity or customer. Marketing campaigns can be created and left to act automatically once a marketing action plan has been defined.

The basic idea of marketing automation is to set up an automated and measurable plan of activities for segments of consumers accompanying them during their experience with the brand.

The main advantage of marketing automation in smaller companies is the ability to expand, automate and measure the activities of acquisition of leads, nurturing and conversion of the same even without the presence of a large and dedicated team. In conclusion, Marketing Automation increases the efficiency of marketing activities and shortens the sales cycle.

If the business falls even in some of the following phrases, probably a marketing automation tool could innovate the production chain of the good or service offered. Classification Process automation can be created that involves emails, websites, call centers and potentially any important point of contact for the company.

Automation of Pre-Consumer Phases: You can notify an agent that a particular lead has returned for the third time on the website and has seen a certainproduct;

Automation for Profiling: You can automate the collection of potential customers from Face book, with a subsequent double opt-in email to verify the real interest of the lead to receive information about

my product. Only if the lead confirms the interest by clicking in the email then I can activate the sales or other information;

- **Automation of Advertising Information:** You can have a potential customer who sends a request for information and is not answered within an hour by a department of the company is passed to the call center and, at the end of the call, receives via email all the information hehanded;

- **Promotional Automation:** You can automate banners on the website to show offers and promotions to that individual user;

PREDICTIVE ANALYSIS

Areas of improvement

Predictive Analytics is a tool in which all companies today should invest in order to definite more incisive and profitable marketing plan and to fulfill many vital business functions for the current activity. In fact, it allows:

❖ to make use of indicators able to estimate the profits derived from the relationships established with their customers and the study of their purchasing and consumption behavior;

❖ to predict customer churn, an instrument capable of identifying the potential abandonment rate of a given customer segment;

❖ to identify the best customers of their target, but also the potential undecided or near abandonment customers, in order to activate a protocol aimed at the recovery of these customers atrisk;

❖ to increase the satisfaction and satisfaction index of its customer base.

Predictive analysis is an excellent strategy that should not be underestimated, especially when it comes to brand positioning, company promotion and revenue growth. Analyzing data is always useful, and relying on professionals is a good solution that should not be

Under estimated. If we can plan marketing activities properly, why not do it and collect the results?

New opportunities for the study of consumer behavior

The exponential increase in data that is increasingly abundant and available today derives from the increased interaction among consumers that spreads in social media, through connected online devices and mobile devices in which all actions, interactions, shares and reactions can be easily recorded andanalyze.

In marketing, the main factor of interest for Big Data is therefore the potential utility of these to assume and implement aware marketing strategies The usefulness of Big Data and the strong impact of social media are evident in the active behavior of the consumer called to analyze the external environment and find information about a possible product-service that needs to satisfy his needs.

Following the consumption phase, the process of experience evaluation and the analysis about consumers' satisfaction, keep the consumer to communicate their level of satisfaction by interaction with other consumers, sharing experiences and fueling the process of generating word of mouth information which today moved often on social network.

Considering their opinions and their level of satisfaction, companies will be able to seize opportunities and identify threats. Considering the margins for improvement deriving from the introduction of BI into the managerial framework.

Pre-purchase consumers' attitude: using and generation of data

In the first phase of consumer problem solving, the consumer identifies that gap between what he has and what he would like to have. Or, he feels a need arising from a state of dissatisfaction within which he finds himself.

Companies, could analyze this problem from a multiplicity of sources, considering a timely analysis of social media, from the analysis of search engine queries extracting data from online discussions (Blattberg, R.C., Deighton J., 1991). Recent studies (Bayus B. L, 2013) have shown that the extraction of new ideas about products and services from online communities investigating the wishes expressed by customers is profitable. As the analysis of interactions increases, companies.

Looking for possible and different alternatives, traditional

models proposed by the economic theories are surely inappropriate: human behavior in the modern consumer behavior, involve components that fall outside the rationality of the choice, but consider different characteristics linked to contextual factors (Payne et al.1993).

In the "offline" world consumers have difficulty in finding good alternatives or better, the research process is more laborious than in the digital world. In the "online" world, on the contrary, the problem might become contrary: the consumer might have too many alternatives to consider for its chose. (Hofacker C. F., Malthouse E. C., S. Fareena,2015).

Companies might also track all the activities carried out by consumers on their websites in the research, analyzing items searched, clicked, added to ashopping cart and then abandoned.

Research Behavior suggests information on how the consumer is planning to evaluate alternatives where using Big data as input, effective techniques would be for example those of collaborative filtering (Murray K.B, Haubal G., 2009).

Attitude and behavior in post purchase consumer: data generation.

When alternatives have been evaluated and consumers have chosen the best one related to their characteristics, they can reach the final choice that leads to consumption: they modulate their acquisitions also considering the variety of configurable possible situations from time to time, or under the influence of the external environment or the opinions of the additional consumers involved. In the current market phase, consumers usually buy more digitally and purchases have been influenced or accompanied by a digital component, while the "off-line" part is gradually contracting: an example is a picture posted on Facebook after buying a simple pizza.

A customer in a restaurant that before being welcomed by staff, waits at the bar, check-in through Foursquare looking for his favorite craft beer before proceeding to purchase it using an app, once sitting at the table will wait for the waiter or will post a photo with his mug helping to generate relevant data. It will also have indirectly "feed" the databases of the past.

Product reviews are exactly the ideal prototype of Big Data. Opinions, comments and their consequences bring us back to the starting point, in the recognition of problems and the alternative evaluation by other customers, because the behavior of the single consumer becomes the antecedent of another (Hofacker CF, Malthouse EC, S. Fareena, 2015): this represents a great example of the potential of data analysis, able to prevent consumers abandonment behavior of the brand towards another (brand switching) or improving the characteristics of products, designing them to the consumer's measure (NPS) (Johnson JS, Friend SB, Lee HS, 2017).

Sources of post-purchase involvement are particularly various and could also include data deriving from mobile-apps, check-in platforms, social TV, as well as likes, retweets, product forwarding,

satisfaction index, sharing ornon-approval of athought, as well as other forms of e-WOM, useful to design the end business strategy (King RA, Racherla P., Bush P., 2014).

RESEARCH METHODS

Review of existing methods for consumer profiling and development of predictive models

In marketing intelligence, with reference to the business intelligence aspect related to marketing, market and consumer data are collected and processed in analyzes that support decision making (H. Hedin, I. Hirvensalo, M. Vaarnas, 2014).

Available data mining techniques allow to reach the objective of study, extracting or detecting models to predict consumer behavior by drawing on large databases. According to the relevant literature, common data mining methods include association mining rules, classifications, clustering, regressions (E. W. Ngai, L. Xiu, D. C. Chau, 2009). Coherently with the research objective, is interesting in consumers profiling by consider a series of available methods.

Data management: customer profiling

To identify a specific group of customers who share similar preferences and respond to a specific marketing signal. Customer segmentation can help categorize different communities of consumers who share similar interests: customer segmentation is becoming increasingly difficult in an environment with large amounts of data to be processed, where the volume of data reception is plentiful and where the variety of data must be taken into account. (M. A. Abbasoglu, B. Gedik, 2013).

Profiling and pricing applications theories

The e-commerce growth has instead made price information available on websites allowing researchers to start using the data of access to websites registers to

study the pricing strategy in the e-commerce site (A. Ghose, A. Sundararajan, 2006).

To perform an automatic analysis of comments posted on the web, it is essential to develop a rich computer-based representation of product information for subsequent analysis: recent studies have identified methods of mining ontology in order to modelproducts and services, able to create onto logiest of project based on text descriptions of products extracted from online social media starting from the consumer WOM (SH Liao, P. Chu, 2012).

PROPOSED APPROACH

When data sources are extremely heterogeneous, technique that can be used is that of Knowledge Discovery in Database (KDD), which allows dealing with quantitative, qualitative, textual data, images and sounds. The technique does not require a priori hypotheses on the part of researchers, does not require hypotheses on the distributive forms of variables and can allow a multiple use of variables and provide algorithms optimized to minimize processing time and better fits the heterogeneity of our data (social media, transactional). The following proposed process might be considered.

❖ Definition and understanding of the application domain. It is useful to identify business problems and objectives and useful to outline behavioral characteristics of consumers.

❖ Possible inclusion of derived and indicated variables that have values that can be obtained from already existingdata.

❖ Data reduction, useful for the data representation mode according to the proposed objectives (choice of the number ofvariables).

❖ Choice of the role of mining systems (for analysis): use of data mining systems for classification, regression, clustering

❖ Choice of data mining algorithms.

❖ Data mining and then application of the models considered valid (classification, decision trees, regression, cluster analysis)

❖ Interpretation of the identifiedpatterns.

❖ Analysis of results obtained and possibility to go back in order to correct methods and consideration making models more efficient.

CONCLUSION

In this paper we have made an investigation on the present and the future scenarios in predictive analysis that is consumer centric. We also have discussed on the methods, tools available in order to discover previously unknown and potentially useful relationships, patterns and information, within large databases based on a proposed framework for identifying the consumers who are likely tochurn.

REFERENCES

1. Johnson, Jeff S., Scott B. Friend, and Hannah S. Lee. "Big data facilitation, utilization, and monetization: Exploring the 3Vs in a new product development process." Journal of Product Innovation Management 34.5(2017)

2. Hofacker, C. F., Malthouse, E. C., & Sultan, F. (2016). Big data and consumer behavior: Imminent opportunities. Journal of Consumer Marketing,33(2)

3. Hofacker, Charles F., Edward Carl Malthouse, and Fareena Sultan. "Big data and consumer behavior: Imminent opportunities." Journal of Consumer Marketing 33.2(2016)

4. King, Robert Allen, PradeepRacherla, and Victoria D. Bush. "What we know and don't know about online word-of-mouth: A review and synthesis of the literature." Journal of interactive marketing 28.3(2014).Hedin, H., I. Hirvensalo, and M. Vaarnas. "Handbook of Market Intelligence:

Understand." Compete and Grow in GlobalMarkets(2014).

5. Abbasoğlu, M. A., Gedik, B., &Ferhatosmanoğlu, H. (2013). Aggregate profile clustering for telco analytics. Proceedings of the VLDB Endowment, 6(12)

6. Bayus, Barry L. "Crowdsourcing new product ideas over time: An analysis of the Dell IdeaStorm community." Management science59.1 (2013):226-244.

7. Vasconcelos,M.A.,Ricci,S.,Almeida,J.,Benevenuto,F.,&Almeida,V. (2012, February). Tips, dones and todos: uncovering user profiles in foursquare. In Proceedings of the fifth ACM international conference on Web search and data mining (pp. 653-662)

8. Liao, S. H., Chu, P. H., & Hsiao, P. Y. (2012). Data mining techniques and applications–A decade review from 2000 to 2011. Expert systems with applications,39(12).

9. Brouwer, R., Martin-Ortega, J., &Berbel, J. (2010). Spatial preference heterogeneity: a choice experiment. Land Economics,86(3)

10. Ngai, E. W., Xiu, L., &Chau, D. C. (2009). Application of data mining techniques in customer relationship management: A literature review and classification. Expert systems with applications,36(2)

11. Murray, Kyle B., and Gerald Häubl. "Personalization without interrogation: Towards more effective interactions between consumers and feature-based recommendation agents." Journal of Interactive Marketing 23.2(2009)

12. Ghose, Anindya, and ArunSundararajan."Evaluating pricing strategy using e-commerce data: Evidence and estimation challenges." Statistical Science 21.2(2006)

13. Payne, John W., James R. Bettman, and Eric J. Johnson. The adaptive decision maker. Cambridge university press, 1993

14. Blattberg, Robert C., and John Deighton. "Interactive marketing: exploiting the age of addressability." Sloan management review33.1 (1991)

Comparative Analysis of Pattern Recognition Techniques

E.Kanchana Devi

Abstract

Data mining includes numerous structures for pre-processing, reading and interpreting data. These techniques fall fundamentally in fields: Pattern Recognition and Machine Learning The layout of our reputation device requires careful attention to the following problems: definition of sample classes, sensing environment, pattern representation, function extraction and selection, cluster evaluation, classifier layout and mastering, choice of training and take a look a samples and overall performance evaluation. The objective of this evaluate paper is to summarize and evaluate some of the well- known method used in numerous tiers of a sample reputation device and identifies studies topics and packages which might be at the vanguard of this thrilling and tough field.

Keywords: Data mining, sample recognition, system getting to know, type, data version, accuracy strategies.

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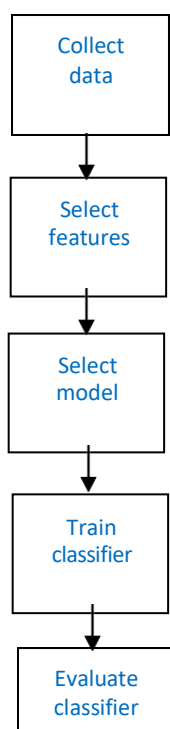K.G.College of Arts and Science,
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INTRODUCTION

Pattern reputation is the procedure of recognizing styles by way of the usage of gadget gaining knowledge of algorithm. Pattern popularity can be defined as the category of information and it is related to the primarily based on expertise already gained or on statistical statistics extracted from patterns and/or their representation. One of the vital aspects of the sample reputation is its software potential. In regular pattern recognition software, the raw information is processed and transformed into a form that is amenable for a system to use. Pattern recognition involves classification and cluster of patterns. In classification, the proper elegance label is assigned to a pattern based totally on an abstraction this is generated using a set of schooling styles or domain knowledge. Classification is utilized in supervised gaining knowledge of clustering generated a partition of the information which helps choice making, the precious choice making hobby of interest to us. Clustering is used in an unsupervised learning.

PATTERN RECOGNITION USING DATA MINING

The principle aim of acts off data mining is to discover shape inner unstructured records, extract meaning from noisy information, discover patterns in reputedly random facts, and use all this records to higher understand trends, styles, correlations, and in the end predict purchase behavior, market and opposition trends, so that the company makes use of its own statistics greater meaningfully to better role itself on the new waves. The number one purpose of sample reputation is supervised or unsupervised class. Among various frameworks where in pattern popularity has been historically formulated,the

statistical method has been maximum intensively studied and used in practice. The objective of pattern Recognition is the recognizable evidence of verifiable objects and relations, i.e. the extraction of styles from the input information. These techniques are mostly associated with photo analysis regardless of the truth that this is the main type of application. Pattern is the entirely around in this virtual world. A sample can both be seen physically or it is able to be located mathematically by way of making use of algorithms.

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REVIEW ON PATTERN RECOGNITION

Pattern recognition is the capacity to detect preparation of traits or data that yield statistics about a given device or facts set. Pattern recognition is the capacity to stumble on preparations of traits or data that yield statistics about a given machine or information set .Given a pattern, its recognition or classification may contains of one of the accompanying obligations. They are supervised category wherein the input sample is identified as an

individual from predefined class and unsupervised classification in which the sample is appointed to an till now obscure magnificence. These programs incorporate data records mining, document classification, financial determining, affiliation and restoration of interactive media databases, and biometrics.

D'Addona DM et al have displayed a tool-wear prediction and sample popularity utilizing artificial neural network (ANN) and DNA-based totally computing (DBC).Over seeing device-wear become a essential problem related with all material expulsion forms. This paper manages the utilization of two nature-stimulated computing structures, to be precise, ANN and DBC for handling the tool-wear. Test facts has been applied to prepare the ANN and, at that point, to play out the DBC. It turned into exhibited that the ANN can for see the extent of tool-put on from an association of device-wear. Images handled underneath given method even as the DBC can distinguish the level of similitude/different among the organized images. Additionally, study can be finished even as tackling other complicated troubles coordinating ANN and DBC where both prediction and sample-reputations were critical computational problems that need to be understood all at the same time.

Mage Let al, have enhanced predictive modeling of decomposition traits were given from Differential Scanning Calorimetry (DSC), through the execution of sample popularity as crucial type. With regards to technique and object outline, predictive models had been progressively utilized. Decomposition residence of chemicals is probably tentatively determined via calorimetric estimations, and multiple molecularstructure-basedmodels-whichconnectthemolecularstructureofmixes with their

decomposition homes, have been likewise accessible. For this reason, the complete decomposition pinnacles of the atoms were spoken to and treated with image processing algorithms to understand the diverse patterns.

Uhlmann E et al, have clarified plausibility of sample recognition using an alternate historical process and sensors facts from a SLM system to beautify the analysis. Selective Laser Melting (SLM) became an delivered substance producing process, in which the exam has been expanding inside the course of new years to meet client specific pre-requisites. In this way, new assembling parameters have been discovered raising the quantity of sensors inside the machines. Thus, it activates a more degree of statistics and troubles to carry out manual facts analysis. The result has been assessed making use of smart equipment for calculations setup and data analysis is created.

ZengY etal, have clarified a novel traffic sign popularity technique based at the examination on the effect that shade space save on the portrayal gaining knowledge of the convolution neural device. ADP-KELM became examined using a kernel-based extraordinary earning system (KELM) classifier with profound perceptual features. Traffic sign popularity assumes a vital part in self-sufficient motors and similarity propelled driver help structures. Albe it different techniques had been created it turned into as yet difficulties for the brand new algorithms to get high recognition exactness with low computational expenses. Dissimilar to the past methodologies, the portrayal getting to know procedure DP-KELM turned into executed within the perceptual Lab color space. Supported the tailor-made profound sensory interest feature, a kernel-based ELM classifier was

equipped with excessive manner effectiveness and speculation execution.

REVIEW ON PATTERN RECOGNITION APPLICATIONS

Abeni et al, planned a face popularity machine supported one-elegance Support Vector Machines for mobile devices jogging the Symbian package. Within the evaluation, the popularity machine becomes tested on a Nokia 6680 transportable and additionally the consequences indicated that partner EER of seven. 92% and 3.95% maybe achieved in keeping with a worldwide threshold and a private thresholds eve rally.

Hadid etal, planned accomplice approach of analyzing a face authentication subject matter exploitation Haar-like alternatives with Ad-a Boost for face and eye detection. The acquired effects have been terribly promising and indicated the feasibleness of face authentication on mobile phones. The achieved average authentication rates are a unit eighty for small-sized faces(40×40pixels) and 96for faces of 80×80pixels severally.

Tao and Veldhu is developed an low cost biometric identification machine for cell gadgets from face detection, registration, illumination normalization, verification to data fusion. Their gadget maybe ready to attain companion Same error price of twenty-inside the test.

Rubio etal. explained extensive unfold interesting making use of sample reputation ways to an atomical neuro imaging information, however so far, there was comparatively little or no investigation in to however great to derived photograph options so one can create the foremost correct predictions. In the course of this work, a Gaussian method gadget gaining knowledge of method turned into used for predicting age, gender and body mass index (BMI) of subjects in the IXI

dataset, additionally as age, gender and diagnostic status exploitation the ABIDE and COBRE datasets. MRI data had been metameric and aligned exploitation SPM12 Foremost correct predictions.

In the course of this work, a Gaussian method gadget gaining knowledge of method turned diagnostic status exploitation the ABIDE and COBRE datasets. MRI data had been metameric and aligned exploitation SPM12.

Reference	Technique	System requirement	Results	Conclusion
D'Addona et al.	Artificial neural network(ANN)and DNA-based computing	MATLAB	The error is a bit more than1% for the 5GB image set	ANN and DBC ,can be used to reduce unnecessary time and volume of information while solving complex computation problems
MageL et al.	Hierarchical clustering; classification tree	197DSCcurves	85%ofcriticalcompounds were correctly identified	Predictive modeling was improved by the graphical clustering
UhlmannE et al.	SLM machine. Nearest Neighbour, Bayes Classifier, Neural Network, and Support Vector Machine (SVM),k-mean algorithms	CMT tool	The Bayes Classifier, due to the achievedaccuracyof63%	The result showed that an automatic classification for the SLM machine is possible.
Zeng Y et al.	DP-KELM ,kernel-based extreme learning machine (KELM) classifier with deep perceptual features	8Intel(R)Xeon(R)E5-2643 CPUs(3.30GHz),12G BDDR4	Recognitionrateis99.54%	The proposed method uses a relatively simple architecture that reduces the computation cost

COMPARISON ANALYSIS FOR PATTERN RECOGNITION TECHNIQUES

FUTURE SCOPE

In current years, deep artificial neural networks have won various contests in sample reputation and machine learning. This overview suggests many guidelines for fruitful evaluation in pattern recognition like Face Recognition, written cursive word Recognition, Speech Signal Recognition, Iris Recognition and Fingerprint Recognition. We are able to use Machine learning knowledge of approach to research high dimensional information with unknown implemented mathematic straits or exactness crops a fetch by using learning the model shape directly from coaching records. Data processing strategies will yield the advantages of automation on present computer code and hardware platforms, and can been forced on new systems as present platforms region unit upgraded and new product developed. Once records processing tools region unit enforced on high overall performance information processing structures, they will analyze large databases in minutes. Quicker process means customers will routinely experiment with additional models to understand advanced information. High speed makes it sensible for users to investigate the portions of facts. Larger databases, in turn, yield stepped forward predictions.

CONCLUSION

Pattern Recognition can be a develop none the less energizing and speedy making field ,that supports for the enhancement sin linked fields, for instance, PC Vision, Content(text)and Record Examination, radio detection and ranging techniques, Speech Recognition, Text Classification, Image procedure and Neural Network Systems. Hence, this review paper has been analyzed several current Pattern Recognition Methodologies exploitation

completely special different data processing techniques. Data processing strategies vicinity unit regularly looked after as being supervised or unsupervised. During this supervised methodology, the rule expects individuals to grantee chino and wanted yield, not with-standing arming input concerning the reality of forecasts throughout the preparation. Once making ready is finished, the calculation can observe what discerned to new data. In unsupervised methodology became, the rule of thumb should not be geared with needed result information. Unsupervised gaining knowledge of approaches location unit used for extra unpredictable tasks than the supervised machine studying frameworks. Additionally the overview paper has analyzed the Pattern Recognition consists of the Face Unsupervised learning ways area unit used for additional unpredictable tasks than the supervised machine learning frameworks. Additionally the review paper has analyzed the Pattern Recognition includes the Face Recognition, Hand written cursive word Recognition, Speech Signal Recognition ,Iris Recognition and Fingerprint Recognition.

REFERENCES

1. D'Addona DM, Ullah AS, Matarazzo D. Tool-wear prediction and pattern-recognition using artificial neural network and DNA based computing. JIntell Manuf.2017; 28(6):1285–1301.

2. Mage L, Baati N, Nanchen A, et al. A systematic approach for thermal stability predictions of chemicals and their risk assessment: Pattern recognition and compounds classification based on thermal decomposition curves .Process Saf Environ Prot.2017; 110:43–52.

3. Uhlmann E, Pontes RP, Laghmouchi A, et al. Intelligent pattern recognition of a SLM machine processandsensordata.ProcediaCIRP.2017;62:464–469.

4. ZengY, XuX,Shen D,etal.Traffic sign recognition using kernel extreme learning machines with deep perceptualfeatures.IEEETrans Intel Trans Syst.2017;18(6):1647–1653.

Analysis of Machine Learning Algorithms in Artificial Intelligence

N.Vaishnavi

Abstract

Artificial intelligence (AI) is wide-ranging branch of technology involved with building good machines capable of playacting tasks the generally need human intelligence. AI has several applications in today's society. AI programs area unit developed to perform specific tasks, that's being utilized for a good vary of activities together with tending, education, transportation, robot control, remote sensing and more. In this varied machine learning algorithms are mentioned. These algorithms area unit used for varied functions like data processing, image process, prognostic analytics, etc. The most advantage of using machine learning is that once associate algorithmic rule learns what to try to to with knowledge it will do its work mechanically.

Keywords – Machine learning, algorithms, classification, and regression, labeled and unlabeled knowledge.

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INTRODUCTION

Machine Learning (ML) is one in every of the quickest rising technologies these days. It's a sub-set of AI technology. Machine learning is employed to show machines a way to handle the info a lot of with efficiency. It's a scientific study of applied mathematics models and algorithms to assist a computing system to accomplish selected tasks with efficiency and severally by relying alone on inferences and patterns extracted from the coaching or non-heritable data.

A machine learning algorithmic rule could be methodology accustomed method knowledge to extract patterns applicable for application during a new scenario. The goal is to adapt a system to a particular input-output transformation task.. The 4 types of machine learning algorithm:

- Supervised learning algorithm
- Unsupervised learning algorithm
- Semi-supervised learning algorithm
- Reinforcement learning algorithm

Machine Learning Process
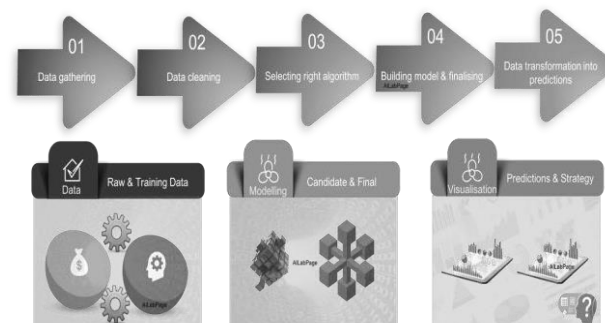
SUPERVISED LEARNING ALGORITHM:

Supervised learning is that the task of inferring a operate from labeled coaching knowledge, by fitting

to the labeled coaching set, we would like to search out the foremost best model parameters to predict unknown labels on different objects (test set). If the label could be a real, we have a tendency to decision the task regression. If the label is from the restricted variety of values area unit unordered, then it is classification. The foremost noted supervised machine learning algorithms are mentioned here.

a. Decision Trees: Classification and Regression Trees (CART) area unit one implementation of call trees. It‟s usually kind of like people‟s call method and is straightforward to interpret. However, they are most frequently employed in compositions like Random Forest or Gradient Tree Boosting.

b. Naïve Bayes Theorem: To calculate the chance that an occurrence can occur, provided that another event has already occurred, we have a tendency to use Bayes theorem. To calculate the chance of hypothesis(h) being true, given our previous knowledge(d).

c. K-Nearest Neighbors (KNN): The K-Nearest Neighbors algorithm uses the entire data set as the training set, rather than splitting the data set into a training set and test set. The similarity between instances is calculated using measures such as Euclidean distance and Hamming distance.

d. Support Vector Machine (SVM): An SVM is exclusive, within the sense that it tries to type the information with the hyper plane between 2 categories as way apart attainable. It uses a method known as the kernel trick to remodel your knowledge so supported these transformations it finds associate degree best boundary between the attainable output.

e. Neural Networks: It's a replacement era of machine learning algorithms and might be applied for several

tasks however their coaching desires large process quality.

f. Linear regression and Linear classifier: In machine learning, we've a collection of input variables (x) that area unit accustomed verify associate degree output variable (y). A relationship exists between the input variables and also the output variable. The goal of ML is to quantify this relationship.

g. Random forests or random decision forests: It‟s learning methodology for classification, regression and different tasks that operates by constructing a mess of call trees at coaching time and outputting the category that's the mode of the categories the (classification) or mean prediction (regression) of the individual trees. Random call forests correct for call trees habit of over fitting to their coaching set.

UNSUPERVISED LEARNING ALGORITHM:

Unsupervised learning models area unit used once we solely have the input variables (X) and no corresponding output variables. They use unlabelled coaching knowledge to model the underlying structure of the information. Here the task of machine is to cluster unsorted information in line with similarities, patterns and variations with none previous coaching of information. The main algorithms for clustering and dimensionality reduction techniques are mentioned below.

a. K-means Clustering: K-means is reiterative algorithmic program that teams similar program that teams similar knowledge into clusters. It calculates the center centroids of k clusters and assigns an information purpose to it cluster having least distance between it is centroid and also the information. It's additional primal, however a really simple to grasp algorithmic program, which will be good as a baseline in a varied type of issues.

b. Principal Component Analysis (PCA): The PCA algorithmic program is employed to create to create knowledge simple to explore and visualize by reducing the amount of variables. This is often done by capturing the most variance within the knowledge into a replacement system with axes known as „principal components" to cut back spatiality of your feature house with minimum loss of knowledge.

c. Apriori: The Apriori algorithmic program is employed in a very transactional info to mine frequent item sets so generate association rules. It's popularly employed in market basket analysis, wherever one checks for mixtures of product that often co-occur within the info. In general, we have a tendency to write the association rule for „if an individual purchases item X, then he purchases item Y" as : X -> Y.

SEMI-SUPERVISED LEARNING ALGORITHM

Semi-supervised learning tasks embody each issue we have a tendency to delineate earlier: they use labeled and unlabelled knowledge. That is a good chance for those that can"t afford labeling their knowledge. The tactic permits to considerably improve accuracy, as a result of we are able to use unlabelled knowledge within the plaything with a tiny low quantity of labeled knowledge. There are many categories of semi-supervised learning. Some of which are discussed below:

a. Generative Models: Generative models area unit one in all the oldest semi-supervised learning methodology assumes a structure like p(x,y) = p(y)p(x|y) wherever p(x|y) could be a mixed distribution e.g. Gaussian mixture models, among the unlabelled knowledge, the mixed parts are often acknowledgeable. One labeled example

per element is enough to verify the mixture distribution.

b. Self-Training: In self-training, a classifier is trained with some of labeled knowledge. The classifier is then fed with unlabelled knowledge. The unlabelled points and also the expected labels area unit more along within the coaching set. This procedure is then recurrent any. Since the classifier is learning itself, thus the name self-training.

Transductive SVM: Transductive support vector machine or TSVM is associate degree extension of SVM. In TSVM, the labeled and unlabelled knowledge each area unit thought about. It"s accustomed label the unlabelled knowledge in such how that the margin is most between the labeled and unlabelled knowledge. Finding a certain resolution by TSVM could be a NP-hard problem.

REINFORCEMENT LEARNING ALGORITHM:

Reinforcement learning could be a kind of learning that makes selections supported that actions to require such the result is additional positive. The learner has no information those actions to require till it"s been given a state of affairs. The action that is taken by the learner could have an effect on things and their actions within the future. Reinforcement learning entirely depends on 2 criteria: trial and error search anddelayed outcome. There are 2 styles of reinforcement.

a. Positive Reinforcement: Positive Reinforcement is defined as when an event, occurs due to a particular behaviour, increases the strength and the frequency of the behaviour. In other words it has a positive effect on the behaviour.

b. Negative Reinforcement: Negative Reinforcement is defined as strengthening of a behaviour because a negative condition is stopped or avoided.

3. COMPARATIVE ANALYSIS OF MACHINE LEARNING ALGORITHMS:

Reference	Technique	System requirement Results	Results	Conclusion
Zeyad Hailatet	Unsupervised machine learning with McMmFL method	Benchmark Facial Datasets includes AR, Yale, PubFig83 Datasets	Recognition percentage for AR- 95.04%, Yale- 98.97%, PubFig83- 95.85%	The discriminative options in object recognition issues were determined and also the recognition rates might be improved by McMmFL methodology
Rana Aamir Raza Ashfaq	Fuzziness primarily based Semi- Supervised Machine Learning Technique	NSL-KDD Dataset	Testing accuracies for KDD test+ = 84.12%, KD	The performance of the classifier for Intrusion Detection system might be improved by FSSLA
Janani Kalyanam	Unsupervised Machine Learning Technique	Twitter Sphere Public API	Totally 84.2% of tweets are observed and tested	The process of carrying out the unwanted tweets from the Twitter Sphere Public API might be achieved by projected methodology
Uhlmann E	SLM machine. Nearest Neighbour, Bayes Classifier, Neural Network, and Support Vector Machine (SVM), k-mean algorithms	CMT tool	The Bayes Classifier, due to the achieved accuracy of 63%	The result showed that an automatic classification for the SLM machine is possible
David M Schnyer	Support Vector Machine Learning Technique	Right Hemisphere Whole Brain FA map with eight datasets	Total Accuracy- 74.0% with 80% Specificity and 68% Sensitivity	The classification of adults with MDD and HC HC might be achieved by SVML with high accuracy

CONCLUSION

This paper surveys varied machine learning algorithms. Machine learning is thus ineluctable these days that we have a tendency to presumptively utilize it persistently day by day while not knowing it. Machine learning techniques area unit of sorted as being supervised or unattended. In this supervised methodology, the algorithmic rule expects individuals to allow each information and wished yield, notwithstanding armament input concerning the truth of forecasts throughout the preparation. These days each and every person is mistreatment machine learning wittingly or unwittingly. From, obtaining a suggested product in on-line searching to change photos in social networking sites. This paper provides an introduction to most of the popular machine learning algorithms.

REFERENCES

1.   S.B. Kotsiantis, "Supervised Machine Learning: A Review of Classification Techniques", Informatica 31 (2007) 249-268.

2. Ashfaq RR, Wang X-Z, Huang JZ, et al. Fuzziness based semi-supervised learning approach for intrusion detection system. InfSci (Ny). 2017;378:484–497.

3. Kalyanam J, Katsuki T, GertLanckriet RG, et al. Exploring trends of nonmedical use of prescription drugs and polydrug abuse in the Twittersphere using unsupervised machine learning. Addict Behav. 2017;65:289–295.

4. Uhlmann E, Pontes RP, Laghmouchi A, et al. Intelligent pattern recognition of a SLM machine process and sensor data. Procedia CIRP. 2017;62:464–469.