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Feasibility of Reverse Billing By Telecom Service Providers

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Abstract: ***To study the alternative way of monetising data, as telecom industry is going through disruption phase. Reverse billing could be one of the possible solutions to generate revenue and retain customers. This research papers talks about that whether Indian customer will be interested in taking a plan where in the operator invades your privacy by strictly masking your identity and share your details like online activity what type of thing you are more interested in to some third party. To know this, we conducted a survey of different age groups. We also went through some of the used cases which mostly used in Africa.***
Reverse billing could be one of possible solution of monetising data and generate revenue in this telecom sector. During the survey, we realised that data privacy is one of major factor because of which reverse billing will not accepted in a place like India. We found a best solution which can cater telecom service providers through reverse billing and protection of data of the consumers can also be done. The solution of the above problem is masking. Masking your identity gives no risk to person's image; therefore, people are much open to it. Questionnaire was made for targeting all kind of people like working men and women, housewife, students, retired people. The Study sampled of 392 people aged between 17 to 50. We couldn't receive more responses from housewife and retired people. There are of some of the operators who have started with something that can be a part of reverse billing. Our analysis shows that how will Indian customers react on TSP's paying them in return of masking your data.
Kewords: TSP, Reverse billing, Monetization, Masking, Customer Intelligence

I. INTRODUCTION

India is undergoing a technology disruption phase where telecom operators are modernising networks to keep up with rapid data growth. Most operators are now grappling with the challenge of having to think totally differently about the network. This transformation from voice-based network to a data-based network brings in complexities. As per the report of Internet and Mobile Association of India (IAMAI), The Number of internet user in India in 2016 was around 432 million and the number is expected to reach to approx. 450-465 million by June 2017. As per Reports, it also suggests that 51% of urban users are daily internet users, while in rural, 48% users are daily internet user. After Demonetisation, data traffic has increased by 29% which shows India generates huge amount of mobile data which can be used by mobile operators through reverse billing. Reverse billing also known as reverse invoicing is functionality provided to customers to use a particular amount of data or any kind of services free of cost where they are invoiced in return by selling data to some other company. This paper talks about the challenges faced by Indian consumers because of reverse billing and also talks about its solution i.e. Masking.

II. LITERATURE REVIEW

For the literature review, we found some companies following a similar concept with that of reverse billing. This concept is explained through different used cases.

A. Quick thoughts

Quick Thoughts is an online website that enables the users to earn rewards by pairing them with surveys that improve the goods and services that they buy. The rewards are in form of points that enable the users to redeem the gift cards after a certain limit.
Different surveys have different points. The members of Quick Thoughts have earned $1,762,051 so far. It also has an app that is available for Android as well as iOS. The users have been provided with FAQs which help them clear the doubts they have in their mind. (Quick Thoughts. 2012)

B. Rewards1

Rewards1 is a website that allows its customers to earn through offers, surveys, games, etc. One has to sign up in order to start using these offers to earn points. The website contains information about the users that participate earn points in real-time basis.
Also, in order to prove that the customers did earn points, there's a facility to upload the picture where the customer who benefitted can post the picture of the rewards received. This makes the other users participate more and more. (rewards1. 2004)

C. Swag bucks

Swag bucks is an online reward based company that enables the users to earn points by playing online games, answering surveys shopping, searching, finding online content, etc. It is a two-sided network as it connects the businesses that benefit by providing such activities and the customers who are interested in performing such activities. Rewards are also in form of gift cards which can be redeemed to retailers like Amazon and Wal-Mart or one can also get cash back from PayPal.
Until now, the company has paid Rs. 197,246,639 to its members. Also, it gives out 7,000 gift cards every day. It received positive feedback from the customers, which is also mentioned in the website of the company. One such remark is by a lady named Kim, who is the member since 2009. She says, "My most rewarding moment with Swag bucks is using the gift cards I earn to buy gifts for my child's Christmas and February birthday." (swag bucks. 2007)

D. Trulioo

Trulioo is a financial technology company based in Vancouver that offers electronic identity verification services by using government and private databases. It was formed to help the businesses comply with Anti-money laundering (AML) and Know your customer (KYC) rules. It offers various plans like Trial plan, National plan, international plan, and enterprise plan, for which the demo is also available. It provides full transparency in terms of verification results, has presence in 60+ countries, provides flexible integration, and the results are real-time based. It has custom rules that help in maximizing the matches and minimizing the risks. Also, it makes use of Business Intelligence. Some of the benefits offered by the company are: Minimizes customer interaction, mitigate risk from online fraud, flexible pricing options, standardized set of fields regardless of country, low-touch integration into web applications, etc. (Trulioo. , 2010)

E. Lend do

Lenddo helps financial institutions to serve market requirements using the data points of the customers. The company generates a score based on the user behaviour on the platforms like Facebook, Twitter, LinkedIn, Google, etc. This score is given to banks, micro financers and P2P to find credit worthiness and loan repayment capability of the customers (Lenddo. 2010)

F. Data wallet

Datawallet takes customer data from Facebook, Twitter, Pinterest, Instagram, etc. They receive information like demographics, interests, income range, etc. The data is then segmented as per the target audience, in order to learn more about their interests. That clustered data is given to the companies to run requisite advertisements after identifying and testing the best possible market segments. And in return, the users earn some specific monetary amount after their data is sold. (Data Wallet. 2004)

G. Data coup

DataCoup provides a platform and acts as an intermediary between the user and third-party data purchasers who will pay the users for sharing personal information such as financial data, demographic data, and data from their social networking sites accounts. A profile of the users is built with selected attributes and values are assigned. This data is sold to brands, retailers, media agencies, wireless carriers, insurance companies, and banks who all-in return offer superior services. (Data coup. N.d.)

H. Momark Services

Momark provides complete mobile based market solution to help merchants attract, engage and retain more customer base and on the other side, they give exclusively searching option for customer, discounts & deals. The mobile app allows to search registered merchants such as restaurants, salons, outlets, spas, chemist and many more. They enable customer to earn and redeem points with the single tap on application. This mobile based reward programme helps to churn out more customers and visible products at one place. The app works as royalty card and is accepted by various merchants which is highly convenient for customers as well as merchants. On the merchant's side, mobile rewards solution is easy to deploy and it quickly delights your customer to avail discount & deals. Momark offers the advanced technology and strong analytics tools which helps merchants to take action on the customer's

data and their buying behaviour. It will help to reduce marketing and advertisement cost. The rewards programme is based on four parameters: Know, Connect, Rewards and Retain customers. The system captures consumer's data and their buying behaviour to sends them recall brand through sending a SMS. Based on the database, Merchants can create marketing campaign and provide preferential treatment to customers. The rewards programme does not required software integration and works on different billing system. It creates a central database that can be accessed through multiple outlets. It connects all customers through different campaign which helps to create brand recall. The system sends automatic transactional SMS, app notification, upcoming events & sales. Momark rewards gives a privilege to collect and club reward points and disburses royalty points on billing system. It helps to boost more repeat sales. The backend system is analyses complete database and based on this database they avail different offers to different customers and retain them with exclusively deals & discounts (Momark Services. 2012).

I. Juvo System

Juvo transforms subscriber consumption with real time credit which has proved to be the first step towards the grater mobile financial service. It increases the customer engagement through the reward based Smartphone app environment. It enables extension of your credits reducing your zero balance days. It increases average revenue per users through real-time credit and rapid usage of services. It reduces the churn through user motivation by providing reward based transactions. It also uses identity scoring to target offers and services to generate new revenue streams and also higher value financial services. Juvo's solution combines many mechanics to increase customer loyalty, engagement and value. It uses customer internet data as well as sophisticated predictive algorithms and modern game mechanics to analyse behaviour of customer device. Through this the customers can use the score to borrow voice, data and balance and also through interactions one can improve scores and access more and more services. When a customer stays longer on any network it becomes easy to analyse their need and provide offers and services that fits customer's needs (Juvo, 2017).

J. CIM (The Chartered Institute of Marketing) - Whose Data is it anyway?

CIM in its annual summit has revealed that about 92% of its customers do not understand where and how the organization, brand or Marketers use the customer's personal information. CIM has conducted a survey on 2500 customer to get an insight on how marketers use customers personal data and the result shows, the condition is critical! As per Orange Telecom, two-third of the European consumer believes that the organization benefits more than they do from their personal data. On the other hand, they are not getting the benefits of the same. Apart from the cybercrime and online fraud, the report also reveals that consumer are unaware of the fact who all holds the consumer data with them and are used through physical or online junk mail or spam and through unwanted advertisement. As a recommendation from CIM to marketers and businesses are as follow.

1) Be straight to the people
2) Articulate benefits
3) Show respect to customer data-
4) Do's and don'ts with data

Consumer attitudes about the personal data are inherently individual, and a one-size fits approach will not serve all companies. Companies need to be careful in exploring the potential of digital equity (CIM., 2016) , (Tim Cooper; Kuangyi Wei. ,2017).

III. RESULT

The questionnaire was divided into five main parameters:

A. General

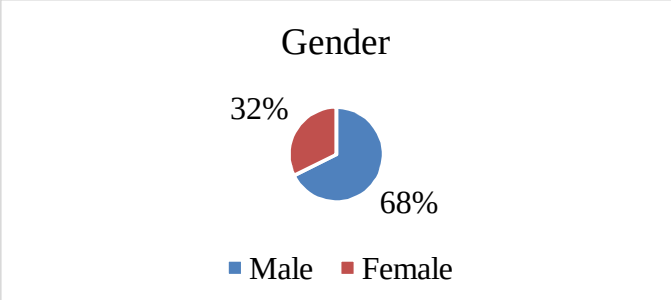

Figure 1.Survey Result

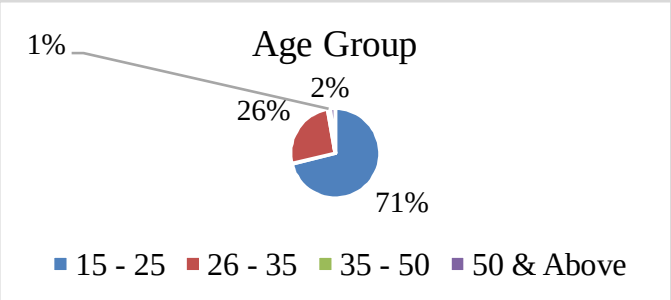

Figure 2. Survey Result

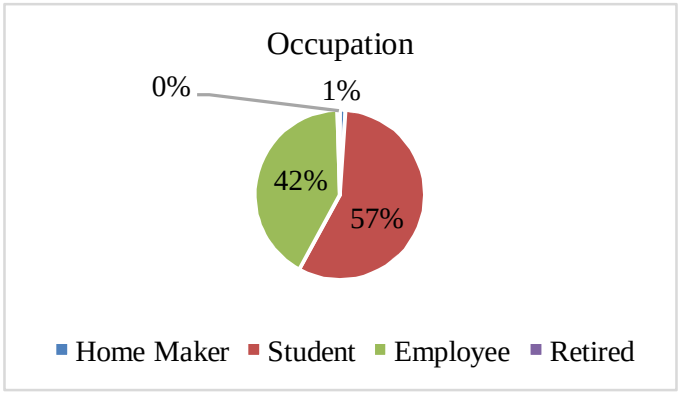

Figure 3. Survey Result

After looking at all 392 responses it was found that majority of of population is from the age group of 15-25 years, out of which 68% responses were from male and among the responses 57% were students and 42% were working employee.

B. Technology

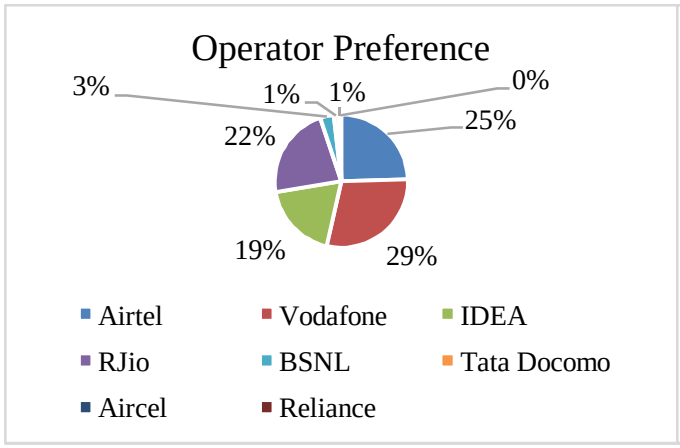

Figure 4.Survey Result

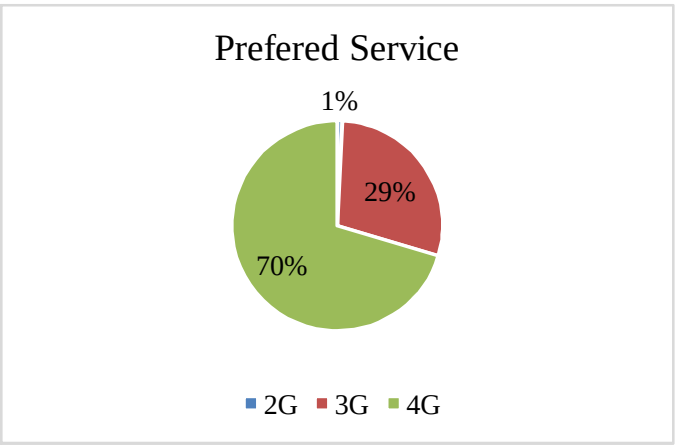

Figure5. Survey Result

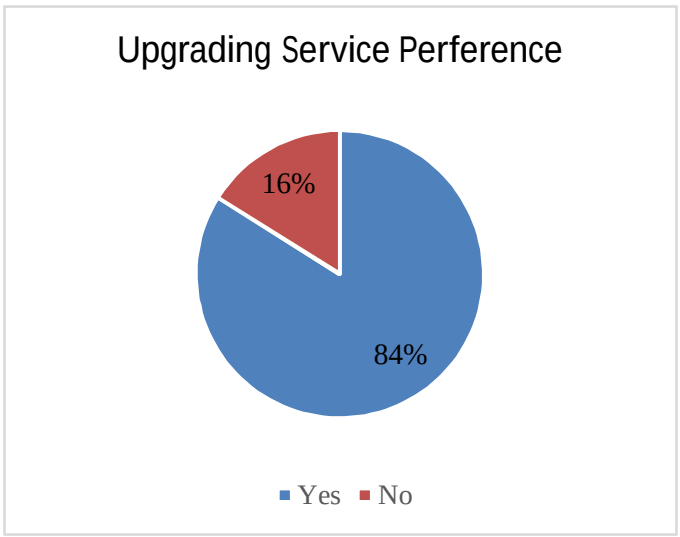

Figure6. Survey Result

When asked about operators they are using 29% people said Vodafone followed by Airtel 25% and 22% population is using Reliance Jio. Almost 70 % people are using 4G technology as data service and 84% people are ready for up gradation of service at any time.

C. USAGE

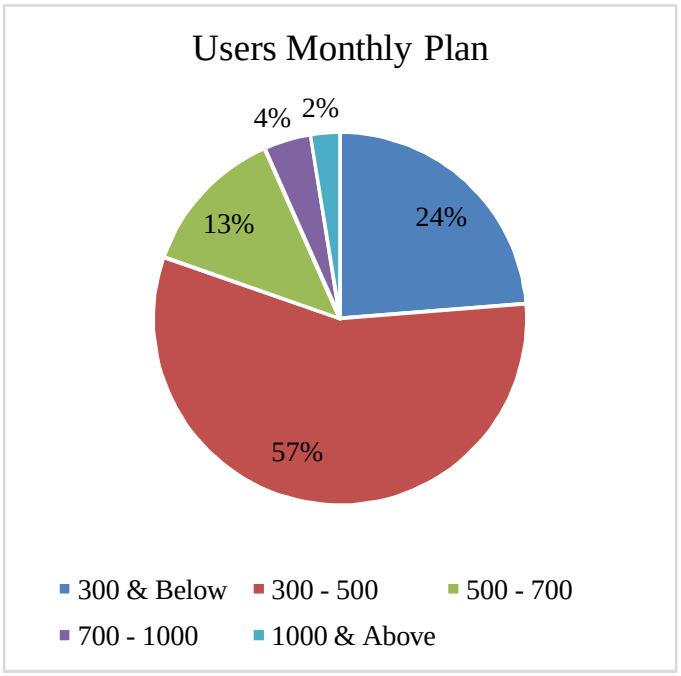

Figure 7.Survey Result

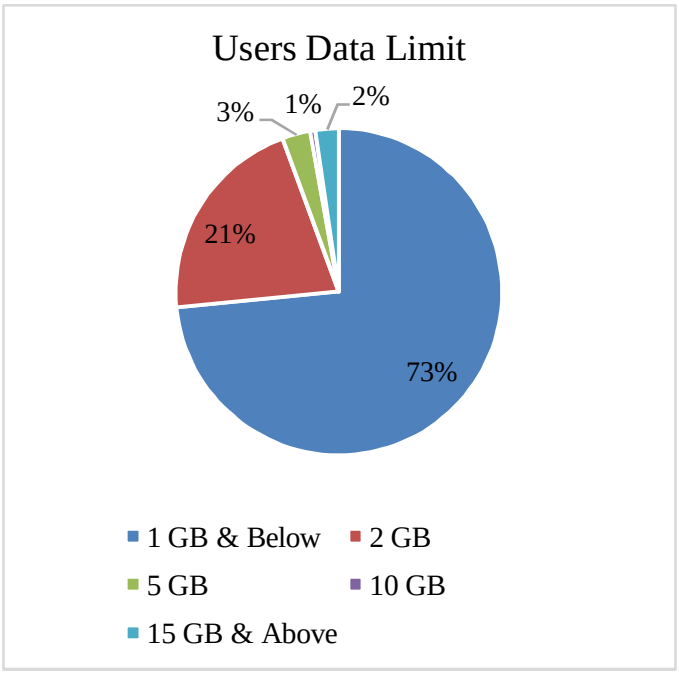

Figure 8. Survey Result

56.6% of the population is spending INR 300-500 per month and when asked about daily data usage 73.5% people were not using more than 1GB of data.

D. USER PERCEPTION

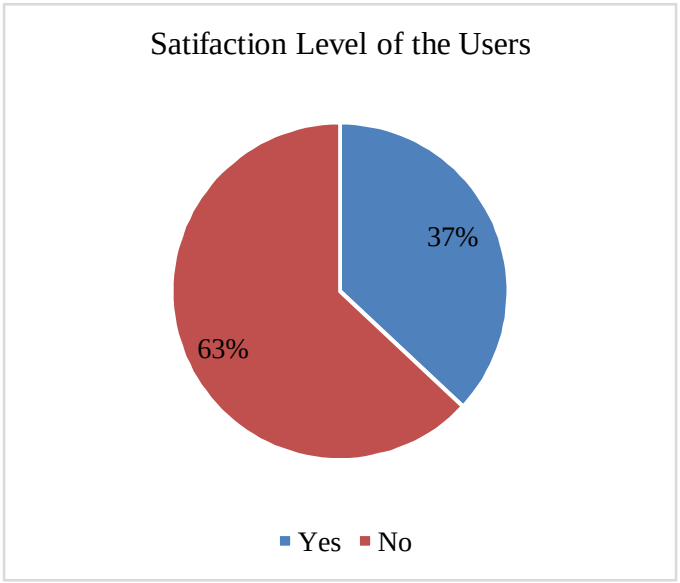

Figure 9.Survey Result

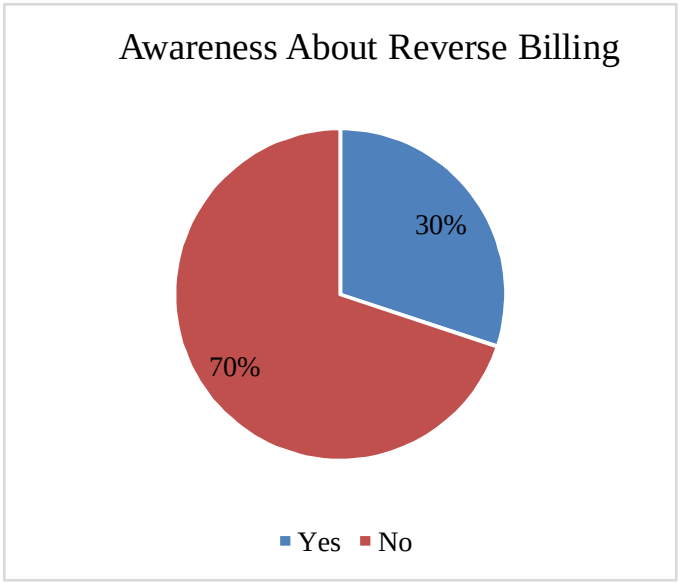

Figure 10. Survey Result

63% of population is satisfied with the current plans offered by the service provider. When asked about the concept of reverse billing it was found that almost 70% people were unaware about it.

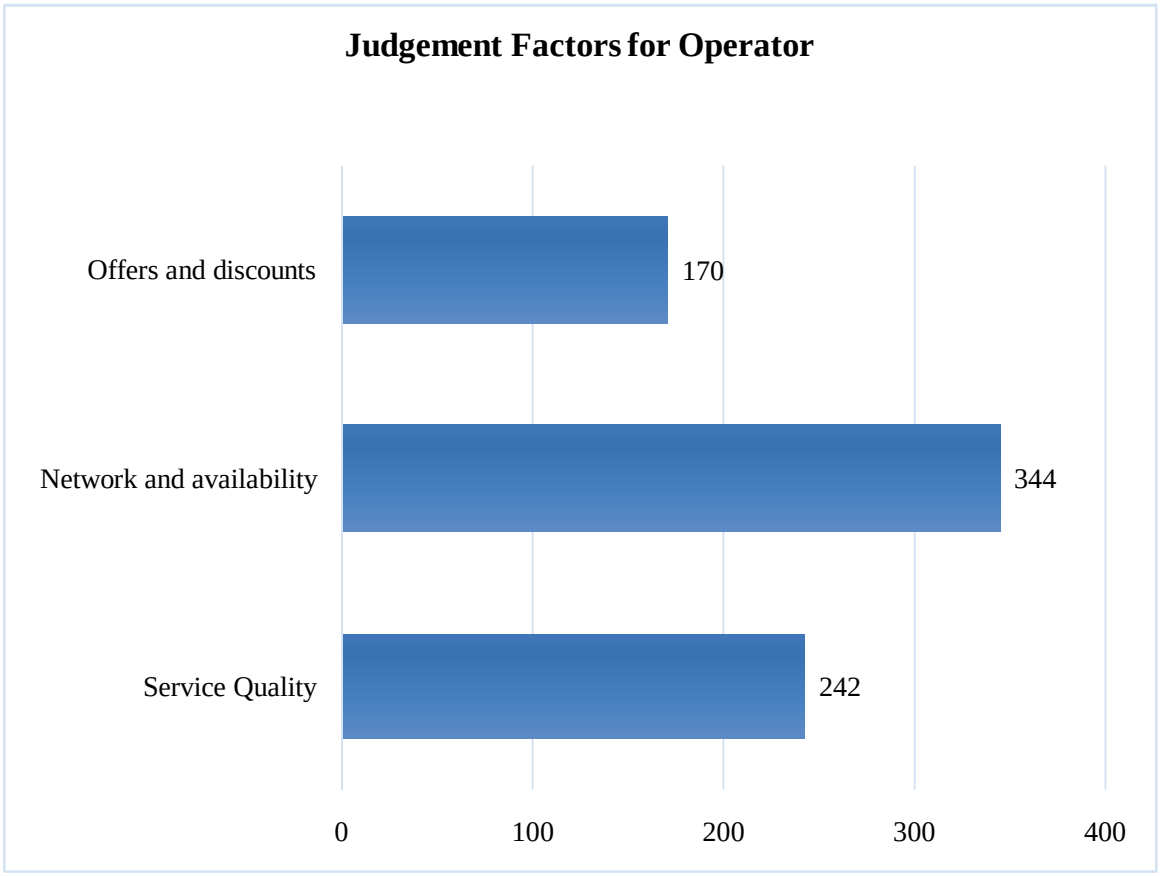

Figure 11. Survey Result

Most of the population is judging the operators on the basis of network coverage and availability followed by quality of service.

D. Data Privacy

When asked about subscribing such plan 86.2% people were ready for it. As soon as they were made aware that when they are subscribing this plan they may have to share their personal details such as browsing activity, time you spend online, recharges you make, number of purchases you do in a month etc. for monetizing through Third Parties 75% people said no.

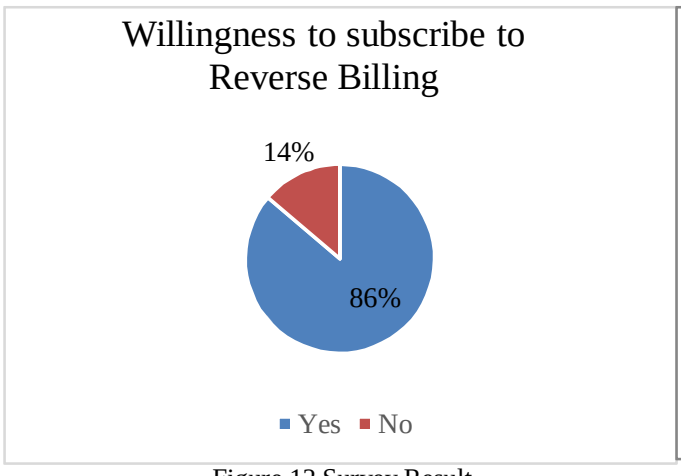

Figure 12.Survey Result

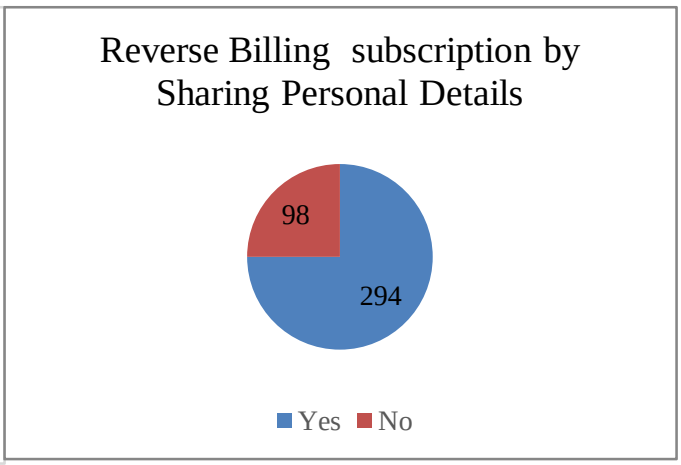

Figure 13. Survey Result

IV. DISCUSSION AND SUREVY RESULT

As per the survey result, the following things could be inferred

A. Majority of the response received was from the Male (67.6%) as compared to the Female (32.4%).
B. Majority of the response were received from student (56.9%) and employee (41.6%). Major limitation were the responses from retired and homemakers.
C. Top operator used by the users in the survey was Vodafone (29.1%), Airtel (24.5%) and R Jio (21.9%).
D. Majority of the users in the survey were from 4G and 3G users and still preferred up gradation in service (83.9%) and current technology i.e. from 2G to 3G or 3G to LTE/4G etc., which clearly shows users are not satisfied with the current service.
E. More than the half of the users (56.6%) had monthly plan in between R.s 300-500 and has data limit of 1GB and below, which clearly shows people are not ready to shed their pocket in an era were lot of attracting offer are offered by the TSP's.
F. Major factor for judging an operator by the user would be on Network and Availability (87.8%) as per the survey.
G. More than Three-fourth of users (86.2%) are to subscribe to Reverse billing, which clearly shows how people are desperate for such an alternative offer and could be viable option for Monetization revenue for TSP's.
H. But majority (75%) don't want to TSP to share user's personal data with the third party. Which is a clear-cut indication that users are vigilant with about their data security and Therefore, a middle path has to be figured at the telecom operator's end for more revenue generation.
I. Based on the above key observation we have further extrapolated the analysis into a graphical representation, which mentioned below.
J. *X-axis:*
1) Technology satisfaction of the users
2) User perception about the current plan
3) User perception about reverse billing
4) User willingness to share their private data

Y-axis: It the perception ofthe users in the survey. It is captured in the scale which is shown below.

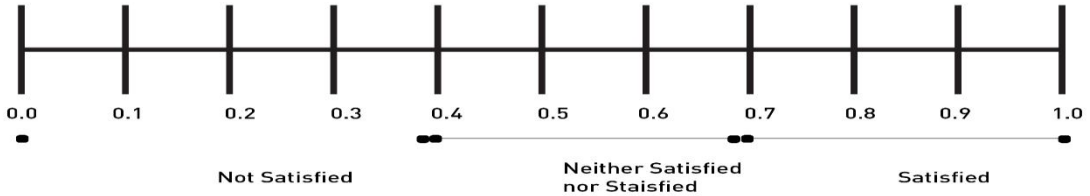

Figure 14. Perception ScaleWith the above factors as parameter in x-axis and perception scale in y-axis is shown in the User Perception Matrix

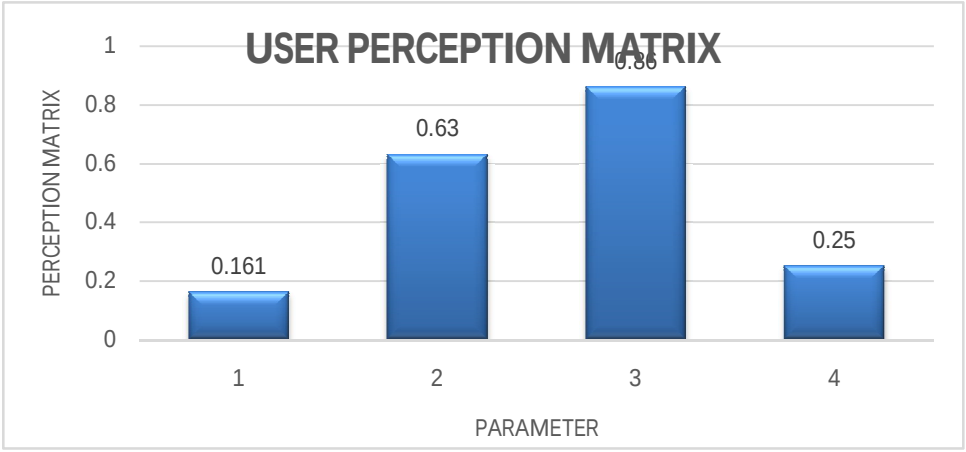

Figure 15. User Perception Matrix

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V. USE CASES

Below are few use-cases where reverse billing application could be used effectively.

A. Ecommerce

With the advancements in technology and upcoming trends, the buying and selling behaviour has also changed. Nowadays people just sit at home, make some clicks on their mouse and wait for the goods to arrive at their doorstep. Ecommerce industry is expected to grow $370 billion by 2017. More than 71% of people believe that buying something online guarantees a "better experience" than buying the product in a physical store. Also amongst the age group, people with 18-34 spend most money on internet as compared to other age group.

To fulfil the everyday growing demand and offer customers with the best experience, there is a requirement to understand their browsing behaviour and purchasing pattern. With the reverse billing applied at telecom operator's end and score generated from that various insights can be made that could help and enhance ecommerce revenue.

1) Based on the score a pattern could be made which tells the internet usage of particular user in particular age group.
2) The information regarding the authenticity of user purchasing the product and the one delivering it could be made.
3) It could also help in predicting the amount a user would be willing to spend on shopping.

B. Gaming

The rise of smart phones and adoption of 4G, has made substantial development in the mobile phones market. Worldwide game industry hits $91 billion in revenues in 2016 with Indian gaming industry worth $200 million. Amongst the worldwide market India represents a high opportunity for local and foreign mobile publishers. The primary aim for the gaming industry is to have more users to play, play more frequently and for longer durations, and pay. Since online gaming companies use promotional offers to acquire new customers, retain the old ones and re-engage former players who have stopped playing.

Also, to attract a wider section of audience a customization is required with the game available, so that for the people to relate to it. To have a deep insight regarding the consumer behaviour in terms of usage and time of usage of internet, the score given by Telco's by adopting reverse billing will be useful in the following ways:

1) Based on the amount of data consumed by a user help in offering free trial services for the game
2) Also help in predicting the choice of game that a particular user would be interested in opting for
3) The number of hours spent on phone calls determines which games could be suggested to that user.

C. Banking Industry

About 74% of the Indian Population has mobile Phones with them. According to Reserve Bank of India (RBI) 22 Million out of 589 million bank account holders use mobile banking Apps and the volume of mobile banking transactions has been 10,18,510 million INR in2014-15. With Increase in transaction every year Cybercrime is increasing in exponential rate and According to Reserve Bank of India (RBI) reported cybercrimes related to ATM, debit card, credit card and net banking fraudsfor last three years.(Financial Express. 2016) , (IJESC. 2011).

Year	No. of Cases
2013-14	9500
2014-15	13083
2015-16	16468

Table1: Number of Frauds reported for ATM, Credit Card and Net Banking (KJ,S, 2017)

With the above scenario in banking Industry, there should be an alternative and Reverse Billing is a right solution to it. If user provide his/her Mobile foot print, then this could help Banking Industry to solve most of their problems (Frslabs. 2009), (Abhay N. 2016).

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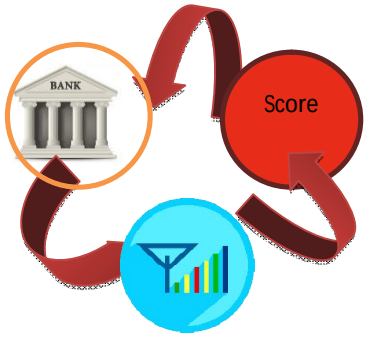

Figure 17. Frame work for Banking Industry

Operator can provide the customer details with their consent to the bank. Bank on the other hand will able to generate a score on the basis of their mobile foot print. This score could be useful for the bank for (*Lenddo.* 2010)

1) Sanctioning Loan
2) Increasing the credit limit
3) Overdraft Facility
4) Reducing Fraud
5) Credit Worthiness

The advantage operator have is that new revenue stream for the them and also a unique service that no other operator provides. On the other hand, Bank will be able to judge their customer more transparently and as a result will be able to reduce the Non-Performing Assets results to a greater extend (Kumar, S. 2015).

D. Insurance Industry

There are 24 life insurance and 28 non-life insurance companies in the Indian market who compete on price and services to attract customers. With 70.4 per cent share market share in FY16, LIC continues to be the market leader, followed by SBI (5.1 per cent), ICICI (4.9 per cent) and HDFC (4.1 per cent). The Indian insurance industry is expected to grow to US$ 280 billion by FY2020. During the first half of FY 2016-17 the Life Insurance industry reported a 20 per cent growth. The number of lives covered under Health Insurance policies during 2015-16 was 36 Cr. which is approximately 30 per cent of India's total population (ibef. 2002).
With Reverse Billing in place, Operator can provide a better insight about user like

1) Reduce False Claim to an extend
2) Kind of Premium to be provided to him/her
3) Credit Worthiness

This could really help Insurance industry to improve their stand in the market and Operator would have a new revenue stream (Frslabs. 2009).

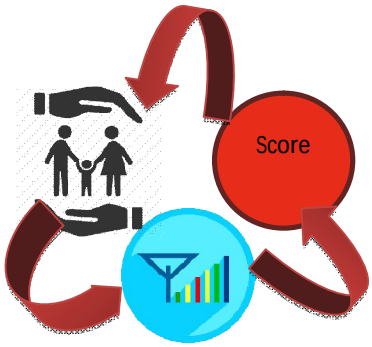

Figure18. Frame work for Insurance Industry

E. MICROFINANCE

India is one among the world largest microfinance Market. Growth rate for microfinance in India in 2015 was 7.3% and in 2016 is expected to be 7.5%. In India, Microfinance has a client base of 39.9 million as of 2016 and Out of which about 39% belong to southern Region. 94% of loan taken from Micro financiers are for Agriculture and Animal Husbandry. Average loan ticket size (first disbursement) has also grown from Rs 14,800 to about Rs 18,000 currently, according to industry sources. (Menon, S. 2016) , (microfinance. 2007)

With Reverse Billing in place, Operator can provide an insight about user like (LexisNexis, 2010)

1) Credit Worthiness of a user's
2) Frauds
3) Loan limit that can be sanctioned

This will be useful specially when the both the parties are not known to each other (Both the Borrower and Lender are unknown to each other) like for recently approved Peer

to Peer (P2P) Lending norms by RBI. (Abhay N. 2016), (Medium. 1998)

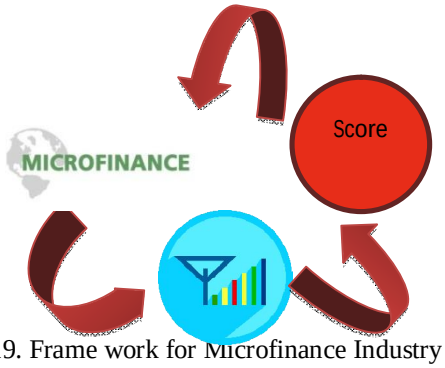

Figure 19. Frame work for Microfinance Industry

VI. CONCLUSION

Telecom service provider are investing heavily in disruptive technology to serve their customer in best possible way. Telco's tend to be big, asset-heavy organizations with extensive infrastructures to build and maintain at one end and large customer bases to service at the other. A majority of telecom executives are excited about the potential of disruptive technology to enhance their business models and operations. Now that the telecom industry is in huge debt, it is very necessary for them to find different channel for revenue generation. A form of monetization, is the act of generating measurable economic benefits from available data sources is known as data monetisation.

As the world moves towards all IP for every mobile service, operators need to quickly turn around a corner and find newer ways to monetize their data infrastructure and be ahead of the game. Operators form the backbone of the mobile economy and have the highest contribution to the mobile ecosystem. Think about this – telecom operators have invested zillions of dollars in setting up the infrastructure that is enabling us to communicate the way we want today, anytime, anywhere. The digital transformation of the industry has resulted in the operators finding it increasing difficult to sustain their revenues and grow. The big question in-front of operators today is, how to effectively monetize the data traffic. However, the operator data revenues are not increasing by a similar proportion. Ability to monetize that insatiable appetite for more data holds the key to their long-term success. Data monetization is critical for the long-term success of operators in this age of digital transformation. It is quite probable, in the very near future that data might just become a new form of currency, with a healthy contribution to the mobile economy.

Reverse billing could be a source of monetizing the data and have extra revenue source in this competitive market. This concept would definitely be success in India as service providers are in huge debt. It has already started emerging which is explained through various used cases from different industry.

One of the possible solutionto Telecom service providers could be, to mask the customer identity and sell their data to the needythird-party companies like banks, insurance company etc. Masking your identity gives no risk to person's image; therefore, people are much open to it. Business canvas model will eventually increase the customer intelligence which will help telecom

service providers to generate more revenue and help them to retain customers. This will provide solution to telecom service provider to cater their customers through reverse billing.

VII. FUTURE SCOPE

One of the main issues that Telecom Service Providers (TSP's) are dealing today is Churn, and one possible reason for the same could be a communication gap of what customer wants and what TSP's provide. Hence, we propose a solution which would increase the customer intelligence quotient for TSP's. The below shown Business Canvas Model will help TSP's to understand their customer in better manner.

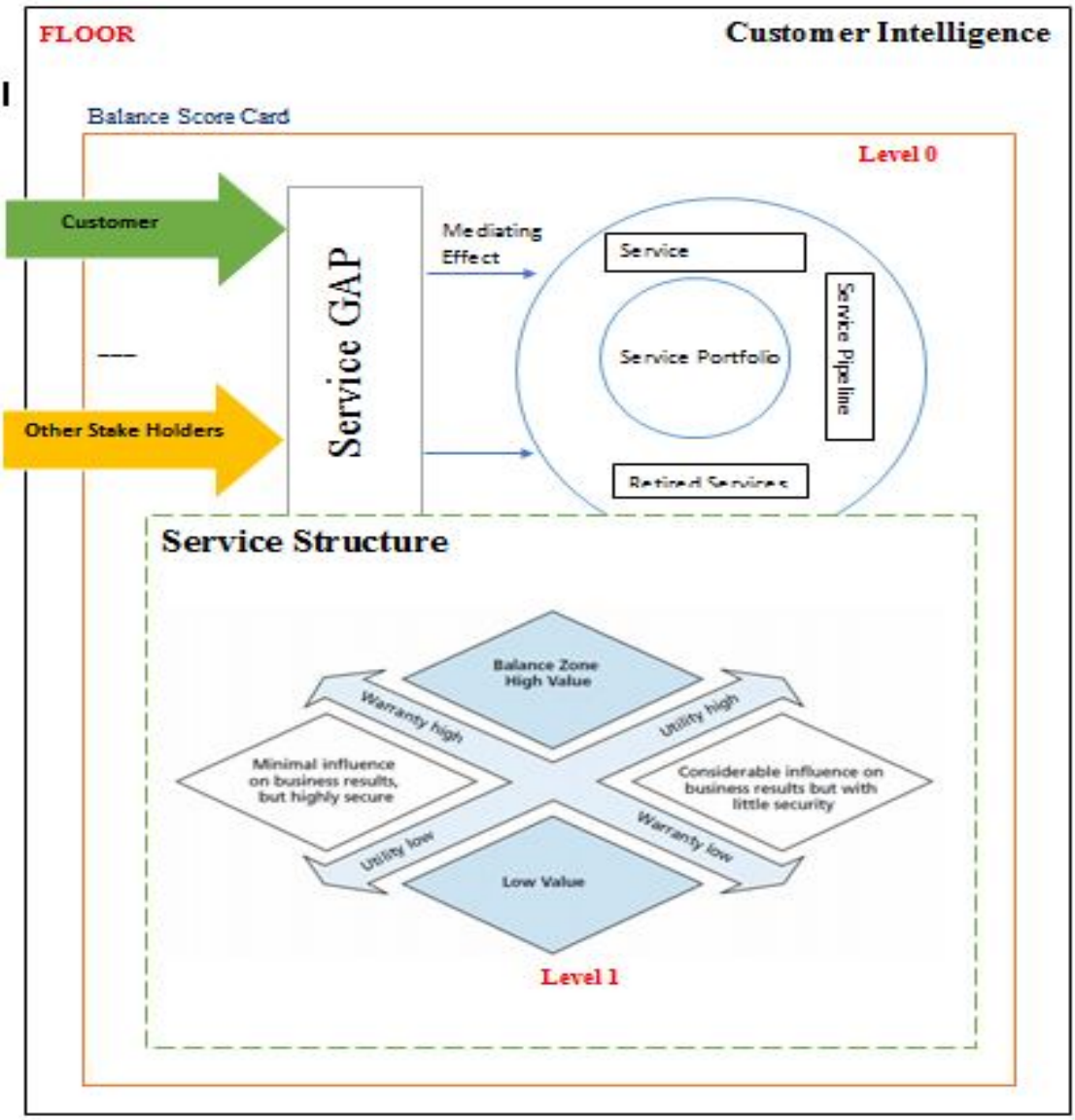

Figure 20. Business Model Canvasfor Reverse Billing

Above diagram is a balance score card. In this, we will first check the gap between customers and their requirements. After analysing the gap, we will check its mediating effect on service, service pipeline, and retired services which intersects the service structure level 1. It is judged on two parameters warranty and utility. So, let us if warranty and utility both are high then then its balance zone high value, when both are low then its low value, if utility is high and warranty is low then considerable influence on business results but with little security and then warranty is high and utility is low then minimal influence on business results, but

highly secure. Business canvas model will eventually increase the customer intelligence which will help telecom service providers to generate more revenue and help them to retain customers.

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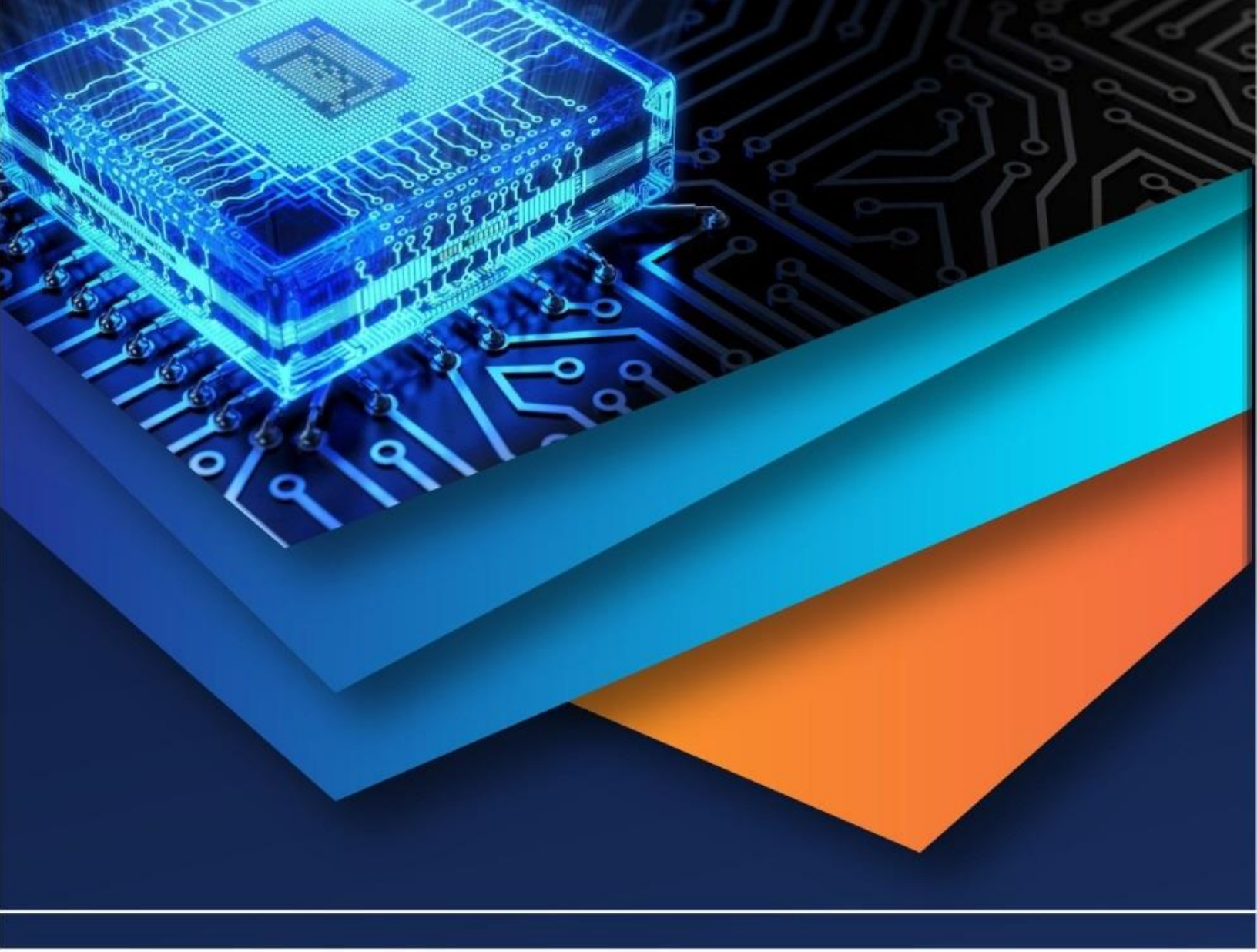

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